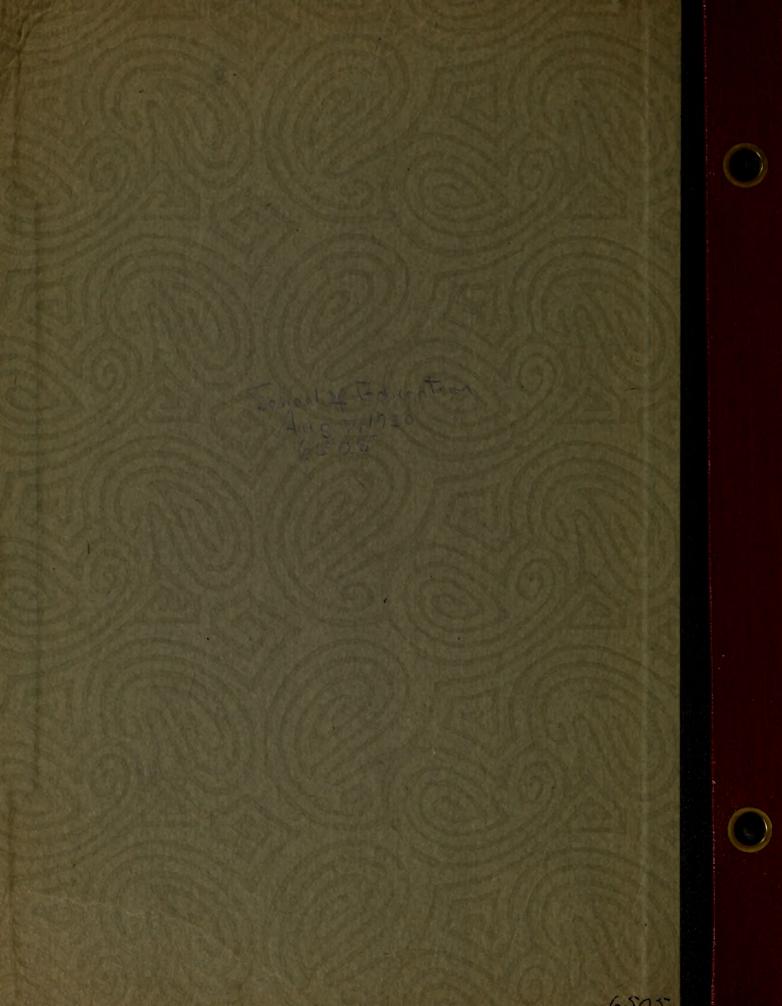
McNulty, Hugh

Appreciation of bookkeeping for junior high school pupils.



Thesis
1930
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BOSTON UNIVERSITY
SCHOOL OF EDUCATION

Thesis

APPRECIATION OF BOOKKEEPING FOR JUNIOR HIGH SCHOOL PUPILS

Submitted by

Hugh McNulty

(B.B.A., Boston University, 1929)

In partial fulfillment of requirements for the degree of Master of Education

1930

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Introduction.

While it is popularly believed than an Appreciation Unit should concern itself with such subjects as History, Music, Art, and Literature, the ingenious teacher will have little difficulty in presenting such a unit in whatever subject she may be teaching. Book-keeping is no exception, and this thesis presents an Appreciation Unit in a phase of Bookkeeping to the students in the Junior High School.

This is done by presenting the procedure from the reading of an electric meter to the payment of the electric bill.

A comparative study was made of a manufacturing company, the Salada Tea Company, and a public service company, the Edison Electric Illuminating Company.

Introduction.

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CONTENTS

Part 1.

1020 20	
Introduction	1
The Junior High School Pupil	1
The History of Bookkeeping	8
The Era of the Accounting and Bookkeeping Machine	19
Discussion of the Psychological TermAppreciation.	23
Part 11.	
A Manufacturing Company	28
Purchases and Stores Control	28
Inventorying	37
Factory Methods	42
Advertising	53
Selling	55
Traffic and Shipping	60
The Credit Department	64
The Accounting Department	66
A Public Service Company	76
The Billing Department	76
The Accounting Department	83
The Cashier's Department	86
The Collection Department	87

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Part L.

The Junter Sigh Squoof Pundless
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Silling Department ansmdunced galilia smr
The Accounting Dapar Month,
The Jacobs began track a function of
And John Department of the Contract of the Con

Part 111.

The	Appro	eciation Unit		89
	Int	roduction		89
	The	Meter Reader's Visit		92
	The	Meter Reader's Book at	the Calculati	ing Divi-
		sion		102
	The	Billing Department		108
	The	Addressograph Division		119
		The Graphotype		119
		The Automatic Feed Ad	dressograph.	127
	The	Return of the Bill to t	he Calculatin	ng Divi-
		sion		133
	The	Statistical Division		135
	The	Bill at the Bookkeeping	Division	150
	The	Payment of the Bill		161
	Sug	gested Time to be Devote	ed in Class to	this
		Unit		169
	Pro	viding for the Expression	on of the Pupi	118170
	Bib.	liography	••••••	174

. III dwew

THE Appropriation Unit
88
29 Wester Reader's Vielt 200
The Deter Render's Book at the Deloulating Sivi-
201
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The Junior High School Pupil.

The Junior High School is primarily concerned with the adolescent. The main purpose of education during adolescence. "should seek to feed the interests and capacities peculiar to the adolescent age; it should aim to fill and develop mind, heart, will, and body rather than to attempt to distill a budget of prepared knowledge ---". During this period of school life attention should be centered on the emotional natures of the children because then most lasting benefits may be derived. A very strong characteristic of the child from twelve to fifteen years of age is idealism. An intense admiration is felt for heroes and anything which savors of the heroic is turned to with much enthusiasm. They have a strong desire to adhere to the rules of the game as established by the group which they recognize as having the authority to determine what is considered to be good form.

With the coming of adolescence the vocational interests become of vital importance. The students become interested in life careers and have ambition to train themselves for positions and stations in life which are of importance and are recognized amongst the social group

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to which they belong. The boy or girl who is capable and fortunate enough to obtain employment which requires skill is looked up to by the other members of the group. Many boys and girls are so placed that withdrawal from school becomes a necessity at an early age. Thus more emphasis should be placed upon junior vocational specialization than is given at present. The boy should be helped toward earning a living and the girl toward learning about the proper conduct of a home. This training whether it concerns the industrial arts, commercial arts, domestic arts, or agriculture, should be introduced in the junior high school in such a manner as to appeal to the interests of the pupils and provide them with a really comprehensive outlook on the fields which are represented.

The appeal to the interests of the adolescent is fundamental and needs to be considered not only in the materials of education but also in the methods of instruction. It is true that, at this age, they are very fickle in their likes and dislikes; nevertheless, they are naturally curious about new things and are eager to explore them. In this transition stage the interest of the children should be built up by allowing them opportunities to

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become acquainted with special fields of knowledge.

The most highly recommended approach to these new fields of thought is by way of general introductory courses. The mind of the adolescence is such that it needs to see large surfaces first and therefore unfamiliar subject matter should be general in nature. This does not mean that accuracy and thoroughness is not necessary but it is of greater importance that the pupils should see the subjects in their whole relationship. The large and fundamental aspects of a subject should be studied, touched upon lightly and passed over with no attempt at completeness of presentation.

In the presenting of unfamiliar subjects the use of many concrete illustrations is important in order to explain the facts and principles involved. Furthermore, the interrelating of the interesting experiences of pupils together with class discussion and textbooks is particularly effective in the junior high school.

That the commercial studies deserve a place in the junior high school will scarcely be questioned. These subjects contain educational value which contribute not only to the end of general culture, but also furnish the

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basis for pre-vocational experiences that the pupil may have a better understanding of the ways in which modern business is conducted.

"In other cases the junior high school is an effort to satisfy the demand for industrial training and thus to meet the desires of pupils and society as these have been expressed in recent years. --- subjects which used to belong to the high school can be taught at a point earlier than was formerly the case." (Judd)

"The intermediate school shall accomplish at least five things:

- 1. To continue common education.
- 2. To find out and satisfy the needs of the pupils.
- 3. To explore the interests, aptitudes, and capacities of the pupils.
- 4. To reveal to the pupils possibilities in the major fields of learning.
- 5. To start each pupil on a career which will be of most profit to him and to the State." (Briggs)

The main purpose of presenting the commercial studies in the junior high school is for exploratory

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reasons and to prepare for the large amount of elimination during this period. Those who leave school usually enter business occupations where clerical practise or junior business training is essential. Such training should include instruction in Business Arithematic, Penmanship, Bookkeeping, Shorthand, and Typewriting.

It is advocated that "try-out" commercial instruction of a more general nature shall be given in the
seventh and eighth school years so that the pupils obtain
some knowledge of business which will be of value regardless of what occupation they may enter into. Furthermore,
if this training or instruction does not appeal to them
they may easily change their programs.

In the ninth year the training altho still general shall be nevertheless, a more practical application which will serve as a foundation for later commercial instruction. Fundamentals, such as, courtesy, honesty, neatness, accuracy, punctuality, cheerfulness, loyalty, industry, attentiveness, and persistency are gradually being acquired and their supreme importance is being realized.

The backbone of the commercial curriculum is bookkeeping since it affords an all around knowledge of commerce and is closely correlated with the other courses.

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will serve as a foundation for larger commercial instruction.

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The ability to write legibly and rapidly as learnt in the Penmanship course is put to practice in bookkeeping. The increased accuracy, habits of checking, and fundamental operation of arithmatic as acquired in the Business Arithmatic course is essential in working out the incidental problems of bookkeeping.

The psychology involved in learning bookkeeping is described by the Commission on Reorganization of Secondary Education as follows.

"It furnishes the best means of teaching business--why and how it is carried on, and its classification into retail, wholesale, manufacturing, etc. It
affords also a valuable means of emphasizing the allimportant trait of character known as initiative.

Through bookkeeping the student can be taught the absolute necessity of attention to minor but vital details;
he can be made to feel what it means to assume responsibility, to execute order, and to work consistently and
patiently for the final results. The habit of sustained
effort on one task is no mean asset to any worker and to
the young business employee it is of vital importance.
The bookkeeping lessons are more closely connected than
are those in any other subject in the whole curriculum,

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and this continued and connected work means much in the students' development. Business customs and terminology can be taught best through the medium of this subject.

Perhaps, the greatest emphasis in the study of bookkeeping in the junior high school should be placed not on the making of future bookkeepers but upon developing character, initiative, thinking power, good business habits, and the great field open to one who has a knowledge of the science of accounts and how modern business is transacted.

Let us proceed logically by first considering the early history of bookkeeping and how it developed through out Europe.

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History of Bookkeeping.

"They who wish to obtain knowledge of any science must first learn its history."

Historical research has convinced this civilization that in Ancient Babylon, Greece, and Rome there was a high state of civilization both industrial and social. One is convinced that the ancient writers on political economy and commerce had often consulted the scribes and accountants who recorded the business transactions of these days. Bookkeeping, however, as we have come to know it was unknown then. Bookkeeping rightly regarded is a specialized form of the art of keeping accounts. It has been built up as a result of the continued efforts to meet the necessities of trade as they gradually developed.

The method employed in thos days of keeping record of transactions was a very primitive form of bookkeeping.

In fact it was then called account-keeping.

The earliest written record was a book kept by a

Florentine banker in 1211. This account book was in reality
merely a number of memoranda entries. Only the transactions
of the bank which concerned the clients were recorded and
there was very little relation between these accounts. Thus
the books were filled with unconnected jottings about the
business which they considered important enough to write down.

Makery of Booksering.

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The saviest in 1911. This second was a book dept by a Florentine basies in 1911. This second took door took in reality cores, a marker of memorands entries. Only the transactions of the sank which conserned the clients were recorded and there was very little relation between these supports. Thus too books were filled with unconnected jottimes about the business which they considered important enough to write core

Then followed the so-called ledgers which were even inferior to the account books of the Florentine banker. Entries relating to sales and purchases are mixed up with household expenses and often family history was included. The nature of the bookkeeping may be gathered from the fact that the entries are all made by the owner himself without the assistance of the clerks. The ledgers were really notebooks.

The gradual change from utter confusion to some semblance of order came about when the accounts had to be submitted to either customers or partners. Thus we find the banks developed the most improved methods of account-keeping because they had to show how they stood with each client. Then partners in business wished a record of the entire course of trading so they might divide the profits of the business and this was a motive for better systems in keeping the books. Furthermore, the tremendous growth in volume of transactions in those enterprises situated in the centers of trade made it necessary for a more orderly method of recording dealings.

It is but natural that the art of bookkeeping should reach its perfection in those countries where com-

Then followed the so-colled ledgers with were even interior to the college of the Plorentine broken.

Intries relating to sales and precises are cised up with the traceled of the college and of the fault blatter, was included.

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merce had reached its highest stage. Venice during the twelfth, thirteenth, fourteenth, and fifteenth centuries was a powerful republic and practically speaking all the world's commerce was concentrated in this small territory and the system of bookkeeping used there was the most perfect known in the world at that time.

In 1494 at Venice, the first treatise on the subject was given to the world. It must have been among the very first books printed because printing from loose metal type set up in the way we know today was not a success until A.D. 1462. The instruction on bookkeeping was only a part of the main volume which was devoted to arithmatic, geometry, and proportion.

The author Brother Lucas Pacioli was born about 1445 in the little City of the Holy Sepulchre in the northern part of Italy near Venice. He was a celebrated mathematician, lecturer, and scholar in his day. He had become familiar with the problems of commerce while acting as a tutor to the sons of one of the merchant princes of Venice. Pacioli had a thorough understanding of the subject and wished to present to the commercial world a systematic treatise of the most important part of commerce, namely, the recording of its transactions and results. Pacioli does not

training, thirtheauth, fourteenth, and fifteenth centuries training the training, thirtheauth, fourteenth, and fifteenth centuries are no powerful remailing and practically appealing all the species and appealing and the contentum and the species of confidenthing and the section.

In 1404 et Venice, the first breather in the cubject was given to the world. It such bave been spond the very first books printed bounds minimizer from looms etc. etc. tope set up in the way we know today was not a siccess natif will had. 1400. The instruction on bookiscoting was only a part of the main volue winds are devoted to spitial and opened to

The author Droker later later invited and born about 14th in the northern 14th in the little of the later of the later later the later the later later the later later later later the later l

claim to have invented double-entry bookkeeping but he calls the bookkeeping he described "The Method of Venice".

The object of bookkeeping is stated by Pacioli in precise terms; to give the trader without delay information as to assets and liabilities. He then gives directions for opening a new set of books. The first step, he explains, is to make a complete inventory of one's possession and of one's liabilities or what one is liable for. Having completed the inventory, the merchant is advised to keep three books which are, Memorial, Journal, and Ledger.

The Memorial is best described as a general book of primary entry. In it everything is entered as it occurs; sales, purchases, and other transactions. The duty of the bookkeeper was to convert each item in the Memorial to the monetary unit in which his accounts were kept. Each city had their own system of coinage in those days. Then having made this calculation he transcribed the entry into the Journal arranging it at the same time as a debit or credit. Each entry has two elements in it a debit and a credit which are always equal. This supports the belief that double-entry bookkeeping originated from the algebraic equation used with such skill by the Greek Mathematician and applied to the

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ble for. Having completed one livestory, the merchant is advised to seep times books which are, Hanceini, Journal, and Makeur.

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recording of business transactions. Such is the historical origin of the Journal as a book of entry.

The Ledger is treated with equal excellence by Pacioli. The ledger was an immense volume filled with pages of accounts. The individual accounts showed the effect of the transaction transferred from the Journal and the same principle of debit and credit was in effect. The accounts with the customers to whom they sold pepper, iron, kettles, and brass candlesticks and the accounts with the creditors from whom they purchased such wares were all arranged in alphabetical order and the balance transferred to Profit and Loss Account when each enterprise came to an end. Then if this account showed a credit balance it would indicate a profit while a balance on the other side indicates a loss to the proprietor. The balance on the Profit and Loss Account is then carried to the Capital Account.

Definition of Terms.

In the translation of the old treatise on bookkeeping the terms debit, credit, inventory, journal, cash, and capital, assets and liabilities are defined so that the above description may be understood more clearly.

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of Pacial. The ladger was an invented relevant and should be and the pages of accounts. The individual accounts and the branchists are anothered from the Journal and the same trinotals of debts and aredia was Journal and the accounts with the emphasize to whose the offers. The accounts with the emphasize to whose they all pages, into the account and death and death and the accounts with the account of the balance transferred to from the additional and the account whose the subject to account the first of account the account account and a aredia death and the first of the account the account is the balance on the search of the Capital

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Debit

Our word debit (shall give) comes from the old Latin "Debita" which in business and from the stand-point of the proprietor means "owe", or he "owes to the proprietor" the which was loaned or given him by the proprietor. This is always on the left hand side when placed in the account in the ledger and is always placed a little to the left in the journal entry.

Credit

Our word comes from the old Latin "credo"

(shall have) which means "Trust or believe" as in business our creditors were "believers" in the integrity of the proprietor and therefore loaned or gave him something. Therefore from the proprietor's point of view the word should be translated as the creditor "is owed by the proprietor" that which was loaned or given to the proprietor. This is always on the right hand side when placed in the account in the ledger and is placed a little to the left in the journal entry.

Inventory

Comes from the old Latin "invenio" which means to find out or discover. Thus the bookkeeper found out what possessions were owned by the proprietor.

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Ledger

Comes from the Dutch "Legger" meaning "to lie down" and was originated probably from the necessity that the ledger, which was called the big book, became so large and cumbersome that it remained or was lying, always in one place. It had numerous pages full of accounts with customers and creditors for goods bought or sold.

Cash

In Italian, "cassa" comes from case or box.

The coins and valuables were carried or placed in a metal box.

Capital

Comes from the old Latin "capitillis" which means "chief" or "head" and also from the Latin "capitili" which means property. Thus capital would mean "the property of the chief" i.e. Proprietorship.

Balance

The following will indicate its meaning. A clean distinction is made by the old writers between;

- debit (left) amount and the credit (right) amounts.
- 2. The reason for entering this difference in the account, and

Donne from the Dutch "Legger" meaning "to lie down" and wee originated probably from the accessity that the ledger, which was called the big book, became so lorge and swaperports that it remained or was lying, siways in one place. It had numberous pages full of accounts with constants and oraditors for goods bought or sold.

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Balance

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1. The difference in an account between the

debit (left) amount and the credit (right) amount of the difference in

the socount, and

3. The status of the account after equalizing both sides by the making of an entry and closing the account. All three are termed balances and balancing while two are distinctly opposite.

work on bookkeeping which was the Italian method called double-entry bookkeeping by the use of the Daybook, Journal, and Ledger. This prized book has influenced us to such an extent that the principles which it ennunciates as of use those days, remain the foundation of our present methods of bookkeeping. There was hardly another science about which there was so much doubt and darkness as bookkeeping and this work by Pacioli was a tremendous step forward. It served as a standard throughout the various countries of Europe during the next century.

Peculiar Sayings of Pacioli.

"Where there is no order there is confusion."

"Who does nothing makes no mistakes, who makes no mistakes learns nothing."

"Accounts are nothing else then the expression in writing of the arrangement of his affairs which the merchant keeps in his mind."

"If you are in business and do not know all about it, your money will go like flies, that is, you will lose it."

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"If losses are in excess of the gains--from which state of affairs may God keep every one who really lives as a good Christian."

The scene of commerce had now shifted from Venice to the republics of Holland. The Dutch had obtained supremacy over the seas and in their commercial relations withthe Italians they became educated in the most advanced form of bookkeeping then prevailing.

The most outstanding Dutch writer on the subject of bookkeeping at the commencement of the seventeenth century was Simon Stevin, a man of great learning especially in the field of mathematics and engineering . He had worked in a mercantile office in Antwerp when quite young and became familiar with the problem of keeping records of business transactions. While engaged in Public Service he thought bookkeeping important enough to induce Prince Mouritz of Orange, the governor of the Dutch countries to install double-entry bookkeeping throughout his territory. Stevin wrote part of his book in the form of a dialogue, consisting of questions and answers which actually occurred in the arguments he had while teaching Prince Mauritz the art of bookkeeping. The examples of the journal and ledger are in many ways excellent. The journal entries are systematically grouped and wherever

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practicable only the totals are drawn in the ledger. Other interesting features are the journalizing of petty expenses and private outlays in monthly totals. In the ledger the profit and loss account is written up at the end of the year and not at the close of each piece of business as in old writers.

This book by Stevin showed many advances towards modern practise and it was of great importance to America because it influenced the views of his friend Richard Dafforne who through his book, "The Merchants Mirror" published in 1636 became practically the English guide and pioneer writer of texts on bookkeeping.

Richard Dafforne an English arithmatic master
lived for many years in Amsterdam and he wished to familiarize his country men with methods of bookkeeping practised in Holland. He became acquainted with Simon Stevin
and follows the same dialogue style as Stevin in his book.
He used the old-fashioned book tric of Memorial, Journal,
and Ledger. It became the model and guide of the later
English writers.

Thus we find that as the centers for commerce shifted from one country to another so also did the most improved methods of bookkeeping. Our present accounting literature and knowledge of bookkeeping came to us indirectly from Pacioli, through the Dutch, and later through

precidence only the totals are drawn in the ledger. Uther interesting features are the journalising of patry expenses and private outlays in monthly totals. In the ledger the profit and loss account is written up at the end of the year and not at the close of each piece of business at in old writers.

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Thus we find that as the centers for commerce splitted from one country to another so elso ald the most improved methods of booksesping. Our present accounting litterature and knowledge of booksesping came to us indirectly from Postoll, through the Dutch, and leter through

the English. It is strikingly noticeable even today that experience has established a fundamental principle in the development of bookkeeping.

Lucas Pacioli enunciated the principle which has stood the test of time and use and will regulate bookkeeping for all ages. "For every debit there must be a credit" will be our axiom, let us otherwise keep our ledger according to whatever arrangement may suit our requirements.

In direct contrast to the deliberate and careful writing up of the old journals and ledgers of these ancient days we turn to the marvels performed by the time saving device known as the Bookkeeping Machine.

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In direct contents to the deliberate and careful writing we are the old journals and ladgers of those envisor days we turn to the marvala corforms by the tine tine naving daying a two most a state that the decited are the decited.

The Era of the Accounting and Bookkeeping Machine.

The most modern methods of accounting and bookkeeping resulted in the inventions of machines to do away
with the use of pen and ink for recording business transactions just as the perfection of the typewriter has abolished the quill for correspondence purposes.

The present generation will doubtless witness the time when the use of the pen and pencil in business will be confined almost entirely to the writing of signatures and checking of records.

The suitability and application of the bookkeeping machine when a purchase is made will first be considered. A study of the purchasing of Merchandise involves
the keeping of an accurate record of incoming merchandise,
noting the terms of payment so that discount earnings may
be taken advantage of, and the issuing of checks, and also
the handling of the Vendor's Accounts. The accounting
machine is so designed and constructed that it enables the
writing of a Remittance Advice, with any desired number of
copies on a Vendor's Ledger and Record of Invoices received
in a single operation. It is also possible to write the
Vendor's Check, charge the Ledger Account and enter the
complete transaction including the amount of discount
earned on a Check Register in a single operation.

Then the writing of the Order is to be considered before we will take up the writing of the Bill. The flat-



The most modern methods of seconding and bookleoping resulted in the inventions of manufact to do sway
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Then the writing of the Order is to be considered

writing surface construction of the bookkeeping machines makes it possible to print any number of forms. These usually consist of the Acknowledgement of the Order, combined with the writing of the Order itself, gives to the customer an exact duplicate of the Order as understood and accepted on the books of the Company. Thus the confusion attending mistakes occurring in Orders, with the needless additional expense and possible loss of Good Will on the part of the buyer, is removed.

The Billing of the Goods involves the writing of two invoices, the original Invoice to go with the Merchandise to be filed, and the Delivery Ticket. The invoices are filled out and the total is extended into its proper column. Also the total Billing for any desired period is secured automatically as the totals are written on the individual Invoices.

The application of the machine in the recording of the Sales and the corresponding entry in the Vendee's accounts is next to be considered. This mechanical marvel can be adapted to show:

- 1. A Monthly Statement for each customer, describing all transactions in detail.
 - 2. A Ledger Account for each customer.
- 3. A Daily Sales Journal that analyzes sales into five major commodity classifications.

writing surface construction of the soldespring excites, where it possible to print say number of forms. These usually sousists of the Actorological of the Unite, care usually sousists of the Actorological of the Unite, gives to the successor of the Unite, always to the soldespread on the books of the Consens. Then the confidence of the Consens, when the confidence additional excesses and continue to Orders, when the confidence of the Consens to Orders, when the confidence of the Consens additional excesses and continue to the confidence of the buyon, is reserved.

The Billing of the doors involved the writing of two involves, the opinion loveded to no with the inconsider to be filled, and the Delivery Picture. The involces and filled our and the total is extended into its

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on the individual Involved.

The application of the manning in the recording of the Conden's of the Cales and the condenses of the machines marvel as the be adapted to show:

1. A Moretag Shatement for each suctioner, dentries in the anti-

U. A "edger Account for meal quancer.

5. A Delly Solan Journal bust analyses males inco

4. A daily Record of Cash Receipts that shows the total amount credited to each customer's account and a five column Cash Analysis, i.e., Net Cash, Cash Discounts, Allowances, Freight and Other Deductions.

Another feature of the machine is when posting sales, each entry is made to three different records in one operation, namely, the Monthly Statement, the Ledger Account and the daily Sales Journal. When posting cash credits, the daily Record of Cash Receipts take the place of the Sales Journal, otherwise the combination is the same.

The boast of this accounting and Bookkeeping

Machine is that it is able to write and calculate all the

Office records from Order writing to the writing of an

Income Tax. Here are the numerous operations it is able
to perform with great flexibility to adapt itself to the
necessities of the individual enterprise.

- 1. Adding Columns of Figures and Subtracting.
- 2. Writing Orders.
- 3. Writing Bills.
- 4. Posting and Balancing Customers' Accounts and Preparing Monthly Statements.
- 5. Preparing Records of Sales, Returned Sales and Cash Receipts.
- 6. Writing Checks and Vouchers.
- 7. Posting and Balancing Purchase Accounts.

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- b. Property and and a sales, Hotored Selection .
 - 8. Intelling through and Vouchers.
 - V. Conting and Spinneling Portion of Ligarith.

- 8. Preparing Records of Purchases, Returned Purchases and Cash Payments.
- 9. Posting and Balancing Expense Accounts.
- 10. Preparing Expense Records.
- 11. Posting and Balancing General Ledger Accounts; -- Asset, Liability and Revenue
 Accounts.
- 12. Preparing General Ledger Journals.
 - 13. Preparing Profit and Loss Statements.
- 14. Preparing Statements of Assets and Liabi-
- 15. Preparing Income Tax Returns.
- 16. Writing all Records in any Business, i.e.,
 Envelopes, Cards, Large or Small Forms,
 in original or any number of copies.

areate advertible outstanding of take part in such crustions.

- S. Propering Records of Purchases, Returned Purchases and Coah Payments.
 - W. Posting and Belencing expense Accounts.
 - 10. Preparing Excense Records.
- 11. Posting and delending General Ledger Accounts; -- Asset, Liability and Revenue
 Accounts.
 - 12. Preparing demonal lodger Journals.
 - 13. Frenering Profit and Loss Statements.
- 14. Preparing Statements of Assets and Liabl-
 - 15. Preparing Income Tax Returns.
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 in original or any number of copies.

Appreciation

The use of appreciation in presenting and creating enthusiasm for new material or enliven old material is particularly applicable to the junior high school. The pupils are at an age when contemplation is possible and the necessity for following a sole plan of study is not yet reached. They are able to enjoy and receive true inspiration from appreciation lessons.

Appreciation is a mental act which deserves as much distinction and consideration as the other activities of the mind. It differs from reasoning because we do not appreciate by thinking through a given problem to a logical conclusion but rather we look at a work of art, or hear the speech, song, or poem of a master and we are instantly or gradually aware that it is a masterpiece,

The real value lies in the fact that after the idea has gotten home to us we are overjoyed that we are able to perceive it, we are pleased to find such a thing has been created by man, and we wish that we were able to create something outstanding or take part in such creations.

The appreciation lesson is distinctive from the usual routine types of lesson. It is of an epoch making nature, the teacher has great enthusiasm in preparing it and wants it to be notable in their every daylife, the pupils feeling some of her enthusiasm and being presented

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with interesting materials are then able to secure real enjoyment. Two important advantages of the appreciation lesson are:

- as listeners and constitute the audience. The experience they are gaining while so engaged must grip them for its own sake. In all cases this experience is based on the motive of entertainment and therefore must give pleasure.
- 2. It is one of the most important educational means of influencing and transforming the attitudes, ideals, and standards of children.

There are some very important principles which have to be considered in preparing and presenting these lessons. It is necessary that due thought be given to the first impression which the pupils are to receive from an inspiring speech, poem, or song, because this impression has the strongest and most lasting effect. The first impression should be forceful and not weak if appreciation is to be expected. Then preliminary interest in the lesson should be built up amongst the pupils by the teacher. The arousal of anticipation for an unusual happening which is to occur in the classroom at a future date. The day in which the lesson is actually given great care should be exerted to prevent distraction by outside influences.

with interesting materials are then able to accure real enjoyment. Two important advantages of the appreciation lesson are:

1. The larger part of the class participates as listeners and constitute the audience. The experience they are gaining while so engaged must grip them for its own sake. In all cases this experience is based on the motive of entertainment and therefore must give pleasure.

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The pupils must be at ease and in a receptive mood if they are to receive the full benefits of the subjects presented for appreciation. There are many forms of distraction, the most common of which are the placing of undue importance on the difficult words and phrases of a poem or speech, and the necessity of going through certain processes in order to be prepared to appreciate a work of art. This is known as the distraction of technique.

It is generally admitted that there is considerable material for appreciation in every subject especially those subjects which deal with human life. Thus geography, history, literature, or bookkeeping may be cultivated to furnish the basis of lofty motives, persistent effort, and hardships overcome. Therefore in the handling of the subject matter of these studies the technique of appreciation must be understood. It is necessary that four definite steps are recognized to guide the teacher in presentation.

- 1. Creating an atmosphere of interest.
- a. The teacher may show her own appreciation greatly, sensibly, and sincerely.
- b. The teacher may admit her deficiency, regretting that she cannot go further and advise those who do appreciate far beyond her ability to do so.

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- c. The teacher should lead the child to grow in appreciation at his own rate. It is an affair of feeling and cannot be forced.
- 2. Providing proper exposure to appreciation material.
- a. The teacher may read to the children material which is within their comprehension and which should make an appeal.
- b. The teacher may take the pupils on trips either real or imaginery or bring in an outsider.
 - 3. Giving appropriate fundamental knowledge.
- a. Mastery of the technique of a subject should not be urged too strenously because it results in effects directly opposite from what intended.
- b. Properly handled a small amount of analysis material will increase the enjoyment.
 - 4. Providing for expression and growth.

If the child has become interested, if he has been exposed to appreciation material and if he has been taught according to his ability to comprehend some of the simple fundamental knowledge on which to base appreciation then he is prepared for the fourth step and that is a reasonable expression of himself either with reference to the appreciation material or in the appreciation material.

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the sparent wind waterful or in the apprehent of relation meterical.

Some of the ways he can do this are:

- a. Choosing.
- b. Repeating.
- c. Attempting to execute or create.
- d. Working in a group or club. *

^{*} Taken from the Third Report on Evaluation of Instruction. N.E.A., G. M. Wilson

Some of the ways no can do this ere:

b. Hagesuing.

d. Astanpoing to execute or create.

d. dorle to coope a at antibrol . b.

Taken from the Third Henort on Avalyation of

PART TWO A Manufacturing Company A Public Service Company Nanufacturing Company

A Manufacturing Company
(The Salada Tea Company of Boston)

Purchase and Stores Control

Elementary in any business is the purchase.

Consider the way a certain type of business devoted to
the mixing, packing, and merchandising of a single food
product conducts its purchases.

Raw materials purchased in three ways.

- a. At a market where a great bulk of the supply is sold at auction.
- b. Through the medium of local brokers and
- c. Through foreign representatives in contact with the source.

Every purchase when made is paid for by check or by letter of credit against the shippers bill of lading. As a consequence little concern will be maintained for raw materials except that they are controlled through the medium of perpetual inventory system which will be discussed later.

Packing supplies, sundries, advertising material and stationery constitute a large item of expense and it is through these that the systems used in purchasing, receiving, and control will be discussed.

Forces of business makes itself felt on certain kinds of material which results in a need for replenishment and marks the beginning of a purchase. In this business, as in most others no one is allowed the authority to

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now metografa purchased in three ways.

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-por ve not like an end that the dispers of tot by cook on by letter of credit and the analysis of the tot to the maintained that the concern will be maintained the medical threatest that the controlled through of the medical friends and which will be discussed later.

Problem and stationery constitute a large tren of expense and is in through these tret the systems used in surelesing, receiving, and control will be discussed.

Parce of retards which remains in a read for reclaming of a sure of the relation of the remains of a sure of the relation of a sure of the relation of a sure of the relation of the relation

create a purchase unless they are duly responsible for such. Having authority, the General Manager, Superintendent or the Storekeeper; for it is with them alone that the Purchasing Agent can act, as they are responsible for the specification necessary for purchases and are familiar with them.

The Purchasing Agent receives the following order:

REQUEST for Purchases				
No.	Deliver to	1	Mate	
IleseTIPTION				
The state of the s				
a made to			deline (mile)	
			and the second	
ORDER FROM		Purchase Order No		
ACCOUN	+ No.		Nted by	
BY		A	pproved	
	No. ACCOUN	No. Deliver to Description Account No.	No. Deliver to Description MACCOUNT NO. WA	

Within the Purchasing Department there are records and useful information on all merchandise used by the concern. This information is in regard to the concerns stocking such merchandise, their prices, quantity, and quality, discounts and terms offered. Action for purchase is made on the basis of information given for the best interest of the concern.

orests a organise unless that end day responsible for such and the Beneral January, Superise tondent or the Starning open to 10 to 10 to 10 ton the starning appet on the Starning appet on oct, so they are responsible for the specification secondary for survivates and and familiar with them.

The Purchasing Agent receives the following

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sized the Purchasing Department there are records and useful information on all repained to used by the concern. This information is in regard to the concerns stocking such merchanism, their prices, quentity, and quality, discounts and terms offered. Action for expresses is made on the basis of information then

In order to secure merchandise for the person requisitioning it, the purchase agents duty is to fill out the following purchase order:

000 010 10110 1116 ptc 011010	
A.B.C. COMPANY BOSTON, MASSACHUSETTS	District .
Please enter our order for the following	
QUANTITY Description	Unit Pro ToTAL
AND IN E'RE BEE THE SERVICE STATE OF SHE SHARE SHAR	
All Freight Must be prepaid Telivery date Terms C's Signature	Purchase Agent Business Manager

which is made out in triplicate. The original (white) is sent to the Vendor, the duplicate (yellow) is retained by the purchase agent and the triplicate (pink) is sent to the Stores Department. The Vendor's copy is the contract for purchase and is upheld as such. The purchasing agent's copy is placed in a dated tickler file which will cause it to be brought to his attention automatically, thereby, causing him to find out if such goods have arrived when needed.

In order to secure reresentant for the contribute to the fill resistant against debt in to fill the following purchase andors:

which is made out in tribitests. The original (suited) is repaired is sent to the Vendor, the ductions (rellow) is repaired by the purchase event and the tribitests (sin.) is sent to the Stores Department. The Vendor's copy is the continuate for nurchases in a detail as even. The purchasing syent's copy to placed in a detail their file water will thereby, cause it to be prought to sin attention assemblished, thereby, amended when needed.

Shipments of merchandise ordered from vendors are received by a receiving clerk who acknowledges receipt. A receiving slip is made out in triplicate and is attached to the merchandise and sent to the Stores Department. One copy of the receiving slip is retained by the receiving clerk while the third is sent to the purchasing agent. Upon receipt of the receiving slip the purchasing agent removes his purchase order from the tickler file, checks off the order as having arrived, and, waits for notification from the Stores Department as to the amount, quality, and condition of the merchandise that was sent there by the receiving clerk with attached receiving slip.

Received for NAME. Address.	OM	17	Slip No
INV. CHECK	ORDEREd	Wgt.	VIA
QUANTITY	PKGS.	Description	AMOUNT
Helivered 7	40		

ere received by a receiving clast was acknowledges receic. A receiving alls is made out in triplicate and
te structed to the merementies not near to the Stores

te structed to the merementies out as the Stores
bepartment. One copy of the receiving oils neet to the
by the receiving clork while the folio is neet to the
nurcleasing agent. Upon receipt of the receiving alip
the purchasing agent removes his purchase order from
the ties ties; checks off the order as having strived
and, waith for notification from the Stores Department

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Merchandise arriving in the stock department is recorded on the receiving slip by a person employed in that Department. The receiving slip moves next to the purchasing agent who checks it against his purchasing order, as well as, a received invoice. If everything is in harmony, he vouchers the invoice for the Accounting Department and turns the receiving slip over to the Stores Recorder who records them in an itemized tray file.

NA	NAME OF MATERIA! The cards contained in this file follow:									
	ON OR.			receiv		11	NORI			received
DATE	PUTCHAS	AMOUNT	DATE	Shipment	AMOUNT	JATE	ORDER	AMOUNT	DATE	Shipment AMOUNT
		100								
		79/63		1 1000			estion!			
	19				155	UEII				
TLATE	AMOUNT									
~///	AMOUNT	BALANCE	DATE	AMOUNT	BAIANCE	TATE	AMOUNT	BALANCE	JATE	AMOUNT BALANCE
7/1/2	AMOUNT	BAIANCE	DATE	AMOUNT	BAIANCE	DATE	AMOUNT	BAIANCE	JATE	AMOUNT BAIANCE
~///_	AMOUNT	BAIANCE	DATE	AMOUNT	BAIANCE	DATE	AMOUNT	BALANCE	JATE	AMOUNT BAIANCE
~///2	AMOUNT	BAJANCE	DATE	AMOUNT	BAIANCE	DATE	AMOUNT	BATANCE	JATE	AMOUNT BAIANCE
7/112	AMOUNI	BAJANCE	DATE	AMOUNT	BAIANCE	DATE	AMOUNT	BAIANCE	JATE	AMOUNT BAJANCE

At the top is seen the "On Order" card while at the bottom will be seen the card for "Daily Consumption".

Merchaniles deriving in the stock deportment is recorded on the requiring plip by a person earloyed in the the Department. The receiving alle moves next to the constitut of a spent who checks it exchant its coreannian in the falle in the receiving the in the receiving the transition of the Stores described then the receiving the present the transition of the Stores described who records them in an itemised that the Stores described who records them in an itemised they file.

twoffet will sind at nentatace shows out

et the better will be son the card for "Daily Consump-

Manufacturing established working on great production units, and where many products are merchandised it is necessary to carry columns for unit prices, total value, then amount of stock available, and reserved. In this type of business being considered, such information is not essential.

Triplicate copies of the purchase orders, when recovered in the Stores Department, are recorded in the space procided for the same on the "On Order" card and then filed away numerically.

Receiving slips, after approval by the purchasing agent are entered in two places--once, on the "On Order" card in the section provided for merchandise received and again on the "Consumption" card--the amount received being recorded in red ink.

Material needed for use is issued from the Stores Department as needed, but, issue can be made only on the basis of an approved order. Approval is made by responsible heads under whose control the stock is to be used. Release of stock is allowed by the approved order which also allows and permits a deduction from the stock record. Following is the stock order or release:

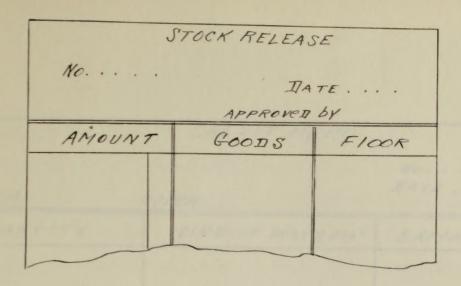
Manufacturing satablished working on seets , and reserved and reserved at it is assessed to the action of action of actions for unit prices, then amount of action solution, and reserved.

In this type of business being considered, and information is not essential.

Triplicate conten of the nurshme orders, when recovered in the Crores Department, are recorded in the constant of the "On Order" card and then filed arey cumerically.

densing agent are determed in two places--ones, on the "un order" and in the newtice for merchandise "un order" and in the "Communication on the "Communication" card-time amount received and sink recorded in red ink.

Stores Department as needed for use is issue from the Stores Department as needed, but, issue can be made only to the one of the basis of an approved order. Annously to be the to be the store of the basis of the store of the store order whose of the stores of the store order white also shows the store the store the store the store of the sto



At all times stock records must balance with the amount of stock on hand. Balancing is insured by a check made periodically against bin tags which accompany the merchandise and on which, entry is made similar to the "Consumption" card of the Stores Ledger. A sample bin tag:

STOCK

WATE IN OUT BAIANCE

In the event that stock is over ordered compelling a return from the department which requisitioned
it, the following form is used and is handled much the
same as a purchase order upon its arrival in the Stock
Department.

a ve between of galances and . Dead no score to sement as a very set between of sement of the set of the sement of refer to the set of the selection of the selection of the second second of the second second of the second second of the second second second of the second seco

In the event that stock is over ordered compelling a return from the department which requisitioned
it, the following form is used and is handled much the
same as a purchase order upon its arrival in the Stock
Department.

Attributing Nation	CREDIT MEMO	1511-15-561
FROM	F100R	No
QUANTITY	KIND OF MATERIAL	EXPLANATION
and in special	one - Servic Laurel to do	on ordered to
	mer. Lot a miles of the	a suppression and
Imministration	one at readed, and a re-	the last beautiful to
STOREKEEPER	FO	REMAN

Perpetual inventory systems, or the constant control of stock as has been described are designed primarily to keep the investment in stock at a minimum; to insure a constant supply and to prevent the overloading of stock with its consequence of "tied-up" capital.

Minimum on the Stores Ledger cards is determined by the length of time that is required to replenish a daily stock bin to nothing. Maximum is determined by several factors; capacity for storage, rapidity for using and savings which may result from large purchases and discounts—its purely an arbitary figure.

At the end of fiscal periods, physical inventories are taken which are valued and brought onto the

Perpetual inventory systems, or the constant control of stock as head for bedressed need as deads to forthee printing to lead the dead of the manual to lead to prevent the constant maps and to prevent the constant maps of "stock of "stock of the control of the

Minimum on the stores bedger cards is deterated by the leagth of time that is required to replanish a daily store bin to society. Maximum is determined
by several fractors; croscity for storest. Replify for
thing and savings which may result from large percentes
and discounts-time oursely on arbitrar figure.

end once the set which med bender and brought once the

Accounting Records. All purchases (as shown in the book of Cash Disbursements) charge to "Stores" are totaled, the result added to the Old Inventory; less the New Inventory renders the amount of Stores material used in operations. Stock issued is then charged to the proper accounts, i.e. a debit to the expense and inventory accounts if needed; and a credit to Purchases or Inventory account as the situation may require.

It has been seen how the control of an asset as valuable money can be taken care of with efficiency, economy and a minimum of loss and theft.

Accounting Records, All parchases (as spine in the book of Cash Disbinsaments) course to "Literes" are totaled, the remain added to the Old Inventory; less the day Inventory renders the among of stores material need in eperations. Stock issued is then commend to the counts in a debit to the engaged to inventory accounts, i.e. a debit to the engaged and inventory accounts if needed; and a tredit to intribute of inventor accounts to the classical may remained

economy and a minimum of loss and theft.

Inventory

At the end of fiscal periods in business, it is considered good policy to make an actual check-up on all assets, stock, and materials within the concern.

These "checkups" or "stock-takings" as they are called serve three purposes:

- 1. They tend to bring the executives into close contact with all assets owned and owed for.
- 2. An accurate check is secured against the perpetual inventory systems used.
- 3. Accurate costs can be computed for income statements if the Inventory is conducted and taken properly.

Fifteen or twenty days before the close of the fiscal period, persons who will be concerned with the inventory work should receive a notice from the Accounting Department in regards to the Inventory. Contained in the notice are facts strictly pertinent to the Inventory such as the date of closing for such Inventory, the need of preparation for it by minimizing the stock ordered for departmental usage, the need of proper arrangement and marking of all stock including that which is salvaged, damaged, or useless and most urgent of all—the necessity of careful, correct, and accurate countings. Crews taking stock, foremen, and office checkers are named therein;

At the end of fiscal periods in business, it is considered good policy to make an actual check-up on all essets, stock, and materials within the concern.

These "checkups" or "stock-takings" as they are called serve three purposes:

- 1. They tend to bring the executives into close contact with all assets owned and owed for.
 2. An accurate check is secured against the
- perpetual inventory systems used.
- 5. Accurate costs can be computed for income statements if the Inventory is conducted and taken property.

Fifteen or twenty days before the close of the fiscal period, persons who will be concerned with the inventory work should receive a notice from the Accounting Department in regards to the Inventory. Contained in the notice are facts strictly pertinent to the Inventory such as the date of closing for such Inventory, the need of preparation for it by minimizing the stock ordered for departmental usage, the need of proper arrangement and marking of all stock including that which is salvaged, damaged, or usaless and most urgent of all—the necessity of careful, correct, and scounate countings. Crows tak-

as well as, the methods to be employed in the handling of receipts and shipments. (The date and hour are fixed after which no shipments will be made and no receipts forwarded to the Stores Departmentuntil the completion of the Inventory).

Directly responsible for the Inventory and working together are the Purchasing Agent and the Chief Accountant. On the date and at the time specified for the taking of the Inventory, they and the crews taking and checking stock meet. Crews are assigned to the kinds of stock with which they are most familiar and are instructed to take all the stock of that particular kind used in the concern. The crews are then supplied with stock slips which are numbered and are made out in duplicate. One set of slips is made out for each bin or location taken and are left with it after the initials of the takers are inscribed thereon. For each type of stock carried, there should be a distinctly different colored type of stock slip -- these colors promote and facilitate the computing of costs, as well as, the summarizing of such stock when made. A stock slip and its contents follows:



as well as, the methods to be employed in the handling of receipts and enipments. (The date and hour are fixed after which no salpments will be made and no receipts forwarded to the Stores Departmentuntil the completion of the Inventory).

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Do Not los	9 10	estroy, OF M	nutilAte			
		Stock	SIIP		(Box	es)
Counted by		OFFICE	FACTORY	1	TATE	Floor
Checken b	Ry .			4	ROPE NO	No.
QUANTITY		MERCHA	NDISE		SUPPLIE	dby
I limited	43					
			•			

Following the initial crew of two is another crew usually from the office, who go through exactly the same procedure as the first crew except that they do not write up another slip--instead, they serve as an unbiased check on those proceeding them.

Each crew, after having completed the work to which they were assigned, report back to the Purchasing Agent or accountant who assign them further work until the complete inventory is taken. Upon completion of the entire inventory, the Purchasing Agent and Accountant pick up the original stock slips. The duplicate slip is left with the stock until complete pricing and checking against inventory systems have taken place.

Crews taking stock are not released until the "pick-up", operations can be resumed.

In order to insure correct and accurate computations for inventories, summaries are made from the inventory slips by the clerical forces; which are submitted with the slips, to the Purchasing Agent and the

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inventory slips by the clerical forces; which are submitted with the slips, to the Purchasing Agent and the

Accountant. The summaries as taken off are carefully checked, pricings made by the purchasing agent and computations by the accounting staff.

Summary sheets in use follow:

MATE	RIAL	SUMMAR)	v of Stock.		D No.	
SIIP	REMARKS	Supplied BY	QUANTI:	UNIT	VALUE	Total VALUE
000, 100	alfia dud					

Completion of all Summary Sheets permit the valuation of the total inventory. Adjustments are made if necessary, and the controlling Accounts within the General Ledger are corrected by the method discussed in Stores Control.

Two important functions in any business are buying and selling. A great many businesses are engaged in something more than buying and selling, i.e., producing or manufacturing materials for sale.

In consideration is a business that mixes and packs their raw material on a large scale. Within the organization, the place of producing for sale is called a factory.

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In consideration is a business that mines and packs their raw material on a large scale. Within the organization, the place of producing for sale is called a factory.

Strictly speaking from the Accounting standpoint, it is not a factory as the accounting affiliation required with it and the records required for it are not similar to usual factory methods. Our interest then, although retained for the organization we are visiting, will be extended to cover some of the elements generally used in Factory Accounting Systems, as well as those of our own specific case.



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Factory Methods

Specific Order Basis Considered

Factory accounting systems vary according to
the type of product being produced or processed. In general, and especially where factories operate on specific
orders for distinct customers, a factory accounting system's prupose is to show the accurate costs to manufacture-in order that, the product may be sold at a selling price
which will insure profits. Other reasons for their employment are for the purposes of showing when, from where, and
how profits occur; and further, the prevention and minimization of operational losses, and as a guide to study
for the strengthening of both weak and strong points in
direct productivity.

Preparatory to manufacture, there must be the release of material from the Stores Department. Usually, the cost of such material is definitely determinable and can be applied to any specific order which is in the process of manufacture. Labor costs directly applicable to such orders are as a rule definitely known; and in turn, these are added to the cost of the specific order in process—such costs as have been mentioned, when combined, are known as "Prime Costs."

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Concerns doing business on a specific order basis, in their factory systems, keep a very careful record of all orders produced and in the course of production. Such records are known as cost systems and are kept for the purposes already mentioned.

Applicable to the factory are certain costs from which certain sections of, or all parts of the factory have benefited. Costs such as these are known as "Burden" or "Factory Overhead". In order to do justice to and have such costs applicable to all production, it is essential in the specific order type of business that such costs be distributed to all orders. "Burden Allocation", or the distribution of such costs, is made on an arbitrary basis which is determined from the amount of proportional benefit that each order has received from the different costs composing the "Factory Overhead". Distribution or the amount of benefit received is approximated from the best kind of information and judgement available.

Cost systems, it is true, cannot and do not work to a point of exactness for the purposes of comparison with the statement of income; but, if they come very near to it, they are considered as good and as serving the purpose for which they were intended.

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Factory Methods

General Order Basis Considered

Minimum--as used and explained in the Stores
Ledger is the factor which determines the need of processing in the specific type of business being considered. Upon arrival at the minimum in any type of
stock used in shipment, there is issued from the department in which the perpetual inventory system is kept,
an order made out in triplicate based upon the type and
amount of stock needed. The original of this order is
sent to a department, or Laboratory Department as it is
known, which controls all the raw material through a
perpetual inventory system. The duplicate is sent to
the department in which the actual packing is done and
the triplicate copy is retained in the department of
origin. The order form follows:

to neis	RAW MATERIALS OFFER				
per of all county	Tor	proprietagi	DATE		
TYPE of	MIXTURE	nden manipilia	No		
Number	PACK IN	POUNDAGE SIZE	POUNDAGE TOTAL		
Two 001	MARGORIA MA	(0.70), (0.00)			
of kneed p	CONTRACT TO	goine very	1 feels lab		
tre strengt	shed by ap	spicy and s	Manager .		
REMARKS; Shipping			SAles		

Factory Methods

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Upon receipt of this order the Laboratory

Department composes a written mixture as standardized

by the concern. Made out in the Laboratory Department,

the following order constitutes authority for process
ing, as well as, the release of raw materials from stock:

	TYPE OF MIXTURE RAW MATERIALS Release TATE No.				
	No. OF Boxes	MARKINGS	Respective Weights	Total Weight	
	n pieces to th	in this cop	ser acuse to	is one of the	
-	COMPLETED	Ing Departmen	APPROVED		

Copies of the above Materials Release are distributed as follows:

- 1. To the department in which the primary pro-
- 2. To the department of origin.

To maintain and insure proper and immediate dispatch of all orders for processing, they are stamped on the back with a device which records the time and date of delivery.

Two other processes follow the first. All three of these processes require very 1 ittle labor as they are accomplished by gravity and machinery.

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by the concern. Made out in the Laboratory Department,
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Recording the operation of the machines are small clocks fitted with a device which operate with the operation of the machine. It is plainly evident that no time can be lost by the machinery or the little labor required in the operation of those machines.

Following the processes mentioned in the preceding paragraph, is the department for packing. The greatest part of the labor employed in our host's factory is employed in this department. It is one of the few places in the factory where cause for contact arises with the Accounting Department.

Raw Material from its first process until its arrival in the Shipping Department works itself downward from the former to the latter.

Machines in the Packing Department automatically weigh, pack, and label the mixtures as compesed in the first process. Packers place the product in boxes and they are removed by a "checker", who records the packing on the following cards according to size and to poundage:

TYPE O	OF MI	XTUR	£-	SIZO	0	
	M	ACHIN	E No			
TIME	60's	20's	10'1	5'0	185	Total
				~		_

Recording the operation of the machines are small clocks
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on the following cards according to size and to poundage:

			,

Computations for the perpetual inventory system maintaining control over stock used in shipments are made from the checker's cards, hence the need for rigid accuracy.

Production and processing in the main depend upon two things, rechinery and labor. Machinery, regardless of the kind and amount Awad by any sevablishment, will not morete and product without hamse nameral, labor.

Descripting the hants for springent someoning content is labor.

noney and to bliminate auto expense ampleyment must be made judiciously. Applicants for positions must be interviewed and surlayed by those executives which the or next was are in close personal songer with the input of

made out the following ased:

Computations for the perpetual inventory system maintaining control over stock used in shipments are made from the checker's cards, hence the need for rigid sccuracy.

Factory Methods

Payrolls and Labor Control Considered

Care, caution, and control must be exercised in the financial expenditures of any concern if that business is to accomplish the purpose for which it was intended. Purchases of raw materials and labor determine to a great extent the financial success of any business.

Production and processing in the main depend upon two things, machinery and labor. Machinery, regardless of the kind and amount owned by any establishment, will not operate and product without human control, labor. Constituting the basis for stringent accounting contact is labor.

money and to eliminate such expense employment must be made judiciously. Applicants for positions must be interviewed and employed by those executives within the concern who are in close personal contact with the labor situation. Each prospective emplyee interviewed is asked to made out the following card:

Pactory Mathods

cand sent it creenes of any control must be exercised in the financial expenditures of any concern if that busthese is to accomplish the purpose for which it was intended. Furchases of raw materials and labor determine
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will not operate and product without human control, labor.
Constituting the basis for atringent accounting contact
is labor.

Miring and firing, it has been learned, costs money and to eliminate such expense employment must be inmade judiciously. Applicants for positions must be interviewed and employed by those executives within the concern who are in close personal content with the labor alteration. Each prospective employed interviewed is asked to made out the following card:

NAME Address			DAT	T E
AGE	Single or MARRIED	Der	rendents	Education
	FROICASE of EMPIOY ME	·N T .		
NATION	Ality		UNIONO	- NON-UNION
Referen	ces	12000	or from	

Applicants hired are assigned a clock number and are placed according to their ability, know-ledge, and training. Wages are determined to a great extent by the basis used for employment, plus consideration for personal needs in the way of dependents.

Notification of employment by the person directly responsible for hiring must go forward immediately to the Accounting Department. The following form records the facts needed in the Accounting or Payroll Department:

No.	1 May 2003	VATE
Please pl	ace the following of	+ of ORIGIN NOUP PAYROLL
Clock No.	NAME	Amount Wates

3524,4522		
LAUT EMPLOYED CAUSE OF RESEASE PERIOT OF SHOWN WENT		
		HOW - WALL
	a Marka)	

Applicants hired are assigned a clock
number and are placed according to their ability, knowledge, and training. Wages are determined to a great
extent by the basis used for employment, plus considerstion for personal needs in the way of dependents.

Notification of employment by the person directly responsible for hiring must go forward immediately to the Accounting Department. The following form records the facts needed in the Accounting or Payroll Department:

New, as well as old employees, are obliged to record their time in or out every morning, noon, and night. Each employee is provided with a clock number and upon arrival or departure goes to an automatic time recording device, which records the time of each impression made on a sheet or card as the case may be. Weekly payrolls are made up from the recordings on the sheets or cards—a sample sheet follows:

No.	NAME	FRI.	SAT	MON	TUCS	wed.	Thurs	No of JAYS.	TIME	
	- 13									

Absentees and tardinesses are checked up one hour after operations are begun in the morning and afternoon--these are recorded as follows:

.,	./	NAME ABSENT LATE AM. P.M. A.M. P.M.		LAT	E	Po Co.	
No.	NAME			P.M.	Rea SON		

Easten University
School of Education
Library

New, as well as old employed to record their time in or out every more of and night. Each employed is provided with a continumber and upon arrival or departure goes to an automatic time recording device, which records the time of each impression made on a sheet or card as the case may be. Weekly payrolls are made up from the recording ings on the sheets or cards—a sample sheet follows:

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				No.	

Victorial Contract

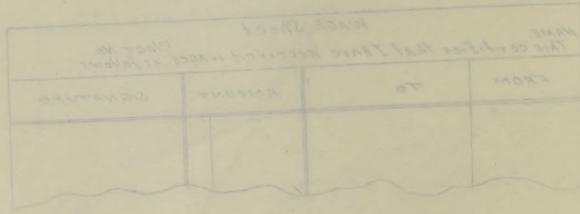
Payrolls and employees are made up and paid off on the day following the last day of the pay-week. Time sheets are removed and replaced with new ones. Against each persons name is recorded the number of days worked by all employees, Immediately after completion of the time sheets, they are forwarded to the Accounting Department for computation and entry on the following payroll sheets made out for each individual employed:

NAME This certis	WAGE . Fies that Thave Ro		Clock No. es as follows
FROM	To	AMOUNT	SIGNATURE

For the total payroll, a check is made out and cashed at the bank which places the proper amount of money in each envelope. Pay envelopes are returned to the company and the employees are paid off during working hours by the Accountant and Payroll Clerk.

Employees released voluntarily or otherwise are paid off in cash from a fund called "Petty Cash", which fund has its control in the office. Notice of such release is forwarded to the Accounting Department on the form which records the notice of employment with

Payrolls and employees are not to off on the day following the last day of the fire sheets are removed and replaced with new one Against each persons name is recorded the number of days worked by all employees, immediately after completion of the time sheets, they are forwarded to the Accounting Department for computation and entry on the following payroll sheets made out for each individual employed:



For the total payroll, a check is made out and cashed at the bank which places the proper amount of money in each envelope. Pay envelopes are returned to the company and the employees are paid off during working hours by the Accountant and Payroll Clerk.

ere paid off in cash from a fund called "Patty Cash", which fund has its control in the office. Notice of such release is forwarded to the Accounting Department on the form which records the notice of employment with

the words "Released" written across its face.

Our host's factory, since it is not one of those producing for specific orders, has no need of an accounting system as has been discussed for that particular type of production. Items of expense directly applicable to factory operation are charged to their respective accounts, either from subsidary records or other books of original entry during, or, at the end of the fiscal periods. Summarized in prescribed and statement form are those expenditures—which summarization and statement forms the basis for further entries and deductions for other analysis and statements of income.

The words "Released" written seross its fact

those producing for specific orders, has no need of an ecounting system as has been discussed for that particular type of production. Items of expense directly applicable to factory operation are charged to their respective accounts, either from subsidery records or other books of original entry during, or, at the end of the fiscal periods. Enumerised in prescribed and statement form are those expenditures—for further entries and deductions forms the basis and statements of income.

Advertising

Methods of expenditure control in this particular branch of business very greatly according to the needs of the type of business being conducted.

Mediums of advertising are newspapers, magazines, trade journals, bill posters, window displays,
street cars, motion pictures and other devices which
will focus attention and demand reading. In the type
of business under consideration, newspapers and window
displays alone are used.

Newspaper advertisements are taken on the contract basis and as a result are paid when contracted for.

Window Displays are placed by representatives of the concern, who, after placing the same must fill out and have the following form signed:

ABC. COMPANY

BOSTON, MASS

This certifies that a window display of ...
has been placed in my store, with my consent free of charge

Size

Size

Name
Street
City

Placed by

Date

gnising

ticular branch of business very greatly according to the needs of the type of business being conducted.

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street cars, motion pictures and other devices which
will focu ation and demand reading. In the type
of der consideration, newspapers and window
of are used.

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Window Displays are placed by representatives acern, who, efter placing the same must fill save the following form signed:

ABE COMEANY

THIS CERTIFIES HAT A WINGOW DISPLAY OF ...

MANS JEES OF CHARGE IN MY STONE, WITH MY CON
SEA STONE

MANS

STONE

OLLY

20-10

20-10

20-10

20-10

Certificates of placement must go forward
to the company daily and upon arrival are turned over
to the Accounting Department. Wages are computed
weekly and paid for by check. After recording by the
Accounting Department, the above forms are forwarded
to the Advertising Department for filing.

Newspaper advertisements are checked from "tear-sheets" sent in by the various publishing companies. Unsatisfactory advertisements are called to the attention of the Advertising Manager whose duty it is to secure proper adjustments.

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Selling

Important, essential and vital to the combined welfare and progress of any organization is the Sales Department-distribution and disbursement of products is its function.

In the business world of today, representatives or salesmen are necessary for the distribution of all products. Competition has made personal contact with the means of distribution a necessity in order to continue, maintain and increase the disbursement of products. Resulting from their contacts, order for merchandise are received which are written on the following forms:

THIS ORDER SO TEXT. No. SAIESMAN	A.B.C. COM BOSTON Sold to Street YNO Cdy Y State	PAN	1	o o operate		Oxder No Billed Extended Checked Stock Ledger Folio
11 11 11 11 11 11	Req No.	Size	Price	A MOU	Nt	TOTAL
Department per host de						

Balling

Important, essential and vital to the combined welfere and progress of any organization is the Sales Department -- distribution and disbursement of products is its function.

In the business world of today, representatives or salesmen are necessary for the distribution of all products. Competition has made personal contact with the means of distribution a necessity in order to continue, maintain and increase the disbursement of products. Resulting from their contacts, order for merchandise are received which are written on the following forms:

			405.00 CON				
Theorem Stock Land Stock Land Stock Land Stock Land Stock Land Land Land Land Land Land Land Land							
		****	req No				

Immediately after receipt all orders are forwarded to a department within a department, the Order
Department, for registering so as to prevent loss in
the handling of those orders and for future reference.
Stamping consecutive numbers on all orders and recording
those numbers in a book containing duplicate numbers constitutes registering. Contents of a registry book, the
Order Register follows:

TLATE OF RECEIPT	Order No.	NAME	Terr. No.	Shirped
		Allient		
-	-	contedgement all sale	miss	DE THE
burned to th	o uran	e Department for Film	and f	

Registered orders are then checked by members of the order department to insure correctness in assortments, type of packing, and mixtures wanted, as are sold in the respective territories.

The next movement of orders is to the Credit

Department which approves or disapproves the order by a

means of a notation on it as conditions may require as

per that department's function.

Immediately after receipt all orders are forwarded to a department within a department, the Order
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The next movement of orders is to the Oredit:
Department which approves or disapproves the order by a
means of a notation on it as conditions may require as
per that department's function.

Orders meeting with the approval or disapproval of the Credit Department are returned to the Order Department.

Approved orders are reorganized in rotation and are sent to the Shipping Department for dispatch.

Orders received in the Shipping Department are signed for on the following slip:

A.B.C. COMPANY

DATE

ORDERS BEATING REGISTER

NUMBERS to

INCLUSIVE HAVE BEEN RECEIVED

TIME RECEIVED

No

Shipper

After acknowledgement all slips must be returned to the Order Department for filing and future checking. Disapproved orders are placed on file until proper approval can be given or correct disposition made.

After shipments are made the orders are returned to the Sales Department, where they are analyzed by types of mixtures shipped and then invoiced. Analyzation of shipments, as made, constitute the means of deduction from the perpetual inventory system controlling the stock used in shipments.

Orders meeting with the approval or disapproval of the Order Department.

and are sent to the Snipping Department for disnatch.

ACCHE CHAPTER PECTURES

THE PE

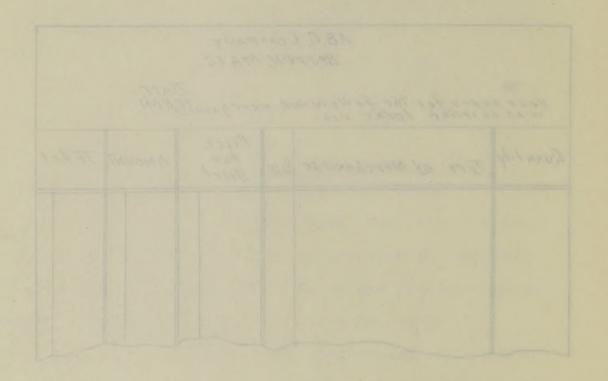
After soknowledgement sell plips must be returned to the Order Department for filling and future checking. Disapproved orders are placed on file until proper approvel can be given or correct disposition made.

to the Sales Department, where they are analyzed by types of mixtures shipped and then involved. Analyzation of shipments, as made, constitute the means of deduction from the perpetual inventory system controlling the stock used in shipments.

To every customer there is sent an invoice which acts in a triple capacity--acknowledgement of the order, notice of shipment and as a bill for the amount due. The invoice follows:

To Your o Was s	rder for the following thipped today VIA:	ON,	MASS.	PATE PRMS	THE STATE
	Type of Merchandise		Price	AMOUNT	Total
	instag and product				
water the same of	and the state of the last of t		100 1 00 100 24 60	1700 17	

To every customer thore is sent an involte which sets in a triple capacity--acknowledgement of the triple capacity and as a bill for the emount due. The involce follows:



Invoicing, when completed, causes the orders to be turned over to the registry clerk who fills in the date of shipment as provided for in the Order Register. From the registry clerk, the orders are sent to the Accounting Department for recording and filing.

Daily reports are received from all salesmen.

Daily reports are recorded, summarized and classified as the needs of the organization dictate by a clerk placed in charge of such work.

Sales Department procedure as outlined may seem lengthy and unwieldy, but, as stated before-accounting systems are made to fit the type of organization for which they function. The system outlined,
with some modification, is much like the systems
generally used in concerns operating on a specific
order basis. At the longest, from the time of receipt
of coders until their final disposition in the Accounting Department, no longer than ten hours elapses in
the system just discussed. Long use of the system
considered has found it to be efficient and as expedient,
as desired.

Invoteing, when completed, causes the orders to be turned over to the registry clark who fills in the date of shipment as provided for in the Order Heyluter. From the registry clark, the orders are sent to the Accounting Department for recording and filing.

Daily reports are recorded, summarized and clossified as the needs of the organization dictate by a clark placed in charge of such work.

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of orders until their final disposition in the Accounting Department, no longer than ten hours elapses in
the system just discussed. Long use of the system
considered has found it to be efficient and as expedient
as desired.

Traffic and Shipping

Serving the concern with a need nearly equal in importance to selling and regarding its welfare as highly as the credit department, we find a department organized for the purpose of conducting traffic and shipping routine.

In late years nearly all concerns have extended their territorial limitations, thereby increasing their sales; as well as, the amount of freight charges that they have had to pay on their merchandise shipments.

In consequence, they have been obliged to control this expenditure until it has become a matter of specilization.

The shipment of merchandise--efficiently, accurately, and quickly has necessitated the organization and compilation of much data within the department. Shipping data is gathered on much the same principle as that gathered for the use of the Purchasing and Credit Departments. Another reason for the accumulation of such data is a ruling laid down by the Interstate Commerce Commission compelling all shippers to ascertain the proper rates on all freight that they desire to have shipped. In formation with which to do this is supplied them as a result of that ruling.

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state to have shipped. In formation with wideh to do
this is supplied them as a result of that ruling.

For every organization there are two types of freight--namely, "In Freight" and "Out Freight". Our first interest centers on "In Freight".

"Foreign" concerns shipping in, as a matter of courtesy, notify the concern to which shipment is made when such shipments have been accepted by a common carrier. Arrival of shipments at the carrier's terminal, if made "F. O. B.", necessitates transportation by the purchaser. Truck drivers are notified of such shipments with instructions to secure them. Release is made by the following order:

Release for Merchandise

Mr

AGENT

Ry.

Please deliver to truck

Acheck will be mailed for freight charges
AB.C. COMPANY

DATE

Per

ShIPPEY

Merchandise released by the above order is delivered to the Receiving Clerk.

Shipping orders for "Out Freight", after being received from the Sales Department, are given singly to an "order picker"; whose duty it is, to

For every organization there are two types of freight ". "In Freight" and "Out Freight". Our first interest centers on "In Freight".

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The state of the market for freight charges

Merchandise released by the above order is delivered to the Heceiving Clerk.

shipping orders for "Out Freight", after being received from the Sales Department, are given singly to an "order picker"; whose duty it is, to

collect and stencil all merchandise recorded on the order.

Outgoing merchandise passes from the shipping room to the trucks by means of a belt conveyor. At the top of the conveyor, a second check takes place and as each shipment goes out the order is stamped by whom shipped, collected, and returned in rotation to the Sales Department.

Uniform bills of lading, adopted by transportation companies are made out for each outgoing order.

A copy of the bill of lading is retained by the shipper as acceptance by the transportation company constitutes receipt.

Every week an itemized analysis of transportation charges are made up by the Shipping Departments.

Bills when received from the transportation companies are checked against these analyses by the Accounting Department, which Department vouchers them, has them paid, and charges the amount to the proper expense account.

Two duties which are important to the successful conduct of any shipping Department are the tracing of delayed shipments and the filing of claims for losses or damages sustained in transit. collect and stencil all merchandise recorded on the order.

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Shipments delayed in transit can be traced by correspondence. Claims for losses and damages sustained in transit are filed with the transportation company on the following form which usually effects satisfactory adjustments or settlements for all parties concerned:

Telivered to At	OUR NO. Your No.
FOR Z	TATE of CLAIM
ON Shipment From To B/L DATED CONSIGNOR CONSIGNOR CONSIGNOR CAR NO. COVEYED BY EXP. BILL NO.	A.B.C. COMPANY PER SHIPPER SUNdry Losses

Sulments delayed in transit can be traced by correspondence. Claims for losnes and demages sustained in transit are filled with the bransportation company on the following form which usually effects satisfactory adjustments or settlements for all parties concerned:

The Credit Department

Acting in conjunction with both the Sales and Accounting Departments is the Credit Department. To prevent the taking on of all and any accounts from which payment could not be secured or would be doubtful is the work of the Department under discussion. Every order received by the concern is forwarded from the Sales Department to the Credit Department for written approval or disapproval. All orders shipped must contain this written approval or else the purpose of any such department is defeated. Written approval or disapproval is based on information contained within the department, which has been gathered much in the same style as the information contained in the Purchasing Department.

Collections are also a duty of the Credit
Department. Whenever it is required, the Accounting
Department forwards information to the Credit Department concerning accounts which have been carried to
the extent of their time or credit limit. Time and
credit-limits were established by the Credit Department with the receipt of the first order from any customer.

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Department. Whenever it is required, the Accounting
Department forwards information to the Gredit Department concerning accounts which have been carried to
the extent of their time or credit limit. Time and
credit-limits were established by the Gredit Department with the receipt of the first order from any customer.

These limits were communicated to the Accounting Department, who made notations of them on the records used for customer's accounts: and whose duty it is to notify the Credit Department when such limits have been reached.

Accounts which are impossible for the Credit Department to collect are turned over to a legal agency which makes every attempt possible to collect, and, who informs it of results being obtained.

Functioning as it should, a good credit department can save a concern a great deal of money that
might otherwise be lost. Credit losses for the concern being specifically considered average less than
one-fourth of one per cent on all sales.

Those limits were communicated to the Accounting Decartact, one made notetions of them on the reaching to the for queboner's accounts; and whose day, it is to notify the decide Daysriance when him lists have been reaches.

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The Accounting Department

Interdepartmental functions must be, it can be understood, affable, cooperative, and efficient for the smooth operation of the methods of routine used in any organization. Success of the organization is as dependent upon those factors as it is upon the information, facts, and analysis forming the basis of decisions, policies, and methods of management handed down by the executives.

Assembled and organized for the purposes of recording, summarizing, and tabulating transactions, as well as their analyzation for the executives is the Accounting Department -- the guide to success in any business. A study of the Accounting Department necessitates the consideration of the procedure for handling Cash, Accounts Receivable, Sales and the Journal.

Cash Disbursements

Memorandum of transactions and value fluctuation are forwarded to the Accounting Department on certain forms prescribed for usage. Transactions primary to value fluctuation are purchases. Contact with the Accounting Department was first made by the Purchasing Department, with the value fluctuation being re-

Interdepartmental functions must be, it can be understood, arisble, cooperative, and efficient for the amough operation of the methods of routine used in any organization. Success of the organization is as dependent upon those factors as it is upon the information, facts, and analysis forming the basis of decisions, policies, and methods of management handed down by the escentives.

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corded on a voucher attached to a received invoice.

Vouchers within themselves are certifications and verifications as to the correctness of their contents, and to those things to which they may be attached. They are made out by persons who are directly responsible for their content; and, serve as a means to any procedure that the Accountant may take as a result of their presentment. A typical check voucher follows:

Check Voucker #

AMDUN!

Check Voucker #

Check No.

Parable to

Address

Explanation

Charge to

C

which voucher would serve as the basis for a cash disbursement. Upon receipt and authorization of the voucher, a check in payment of it would be made out. Resulting, an entry would appear in the book of Cash Disbursements. Following is a specimen sheet of a typical book used for Cash Disbursements: voncess are savious at this times are savious and this times

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Check No.	dans de	PAYE	c	5 10 20	any o	Vouche No.	PAI.	D I	IIISCOUM ON PUTCHASE
RAW MAT.	Stores	Gen// Expense	Advit	FAC!	SIW.	Freight	General Account	4/ L	Ledger

At all times the book of Cash Disbursements should equalize itself into corresponding debits and credits. At the end of fiscal periods, summary entries are made and posted to the General Ledger Accounts.

Often it happens that small and immediate expenditures must be made in cash. Control over this type of expenditure is made through the establishment of a fund, for which the Cash Disbrusements clerk is held responsible. The Petty Cash Fund, as it is called, is created onwhat is known as the "Imprest Basis".

Creation of the fund is made by the cashing of a check, the amount of which is turned over to the Cash Disbursements clerk for safe keeping. At all times, this fund must be equal to its creation either in cash or in approved vouchers made out for all payments.

Billian County of the party of the principal of the principal of the party of the p

presided geliconnerse cont Theat estima historic country ontil a section of country on the country of the count

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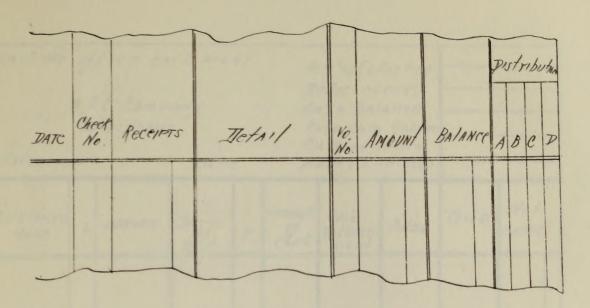
off a sands, the amount of which is corred ever to the open to the open to the sale of the sale open to the sale of the sale of the sale open to the sale ope

Serving the purpose of a Petty Cash Voucher is the following form:

Petty Cash Vouch		
DATE AMOUNT OF DISBURSEMENT	No.	14
Charge to		
For:		
Morey Received by		
APPROVED		
Authorized		

Depletion of the fund by payments necessitates replenishment. Replenishment can be made at frequent and regular intervals or as needed. When replenishment is desired a check is drawn to the extent of all approved and paid vouchers. All vouchers for expenditures are at that time distributed in the following book of entry for summarization and posting:

correction with opening of a feet, limit leading to the

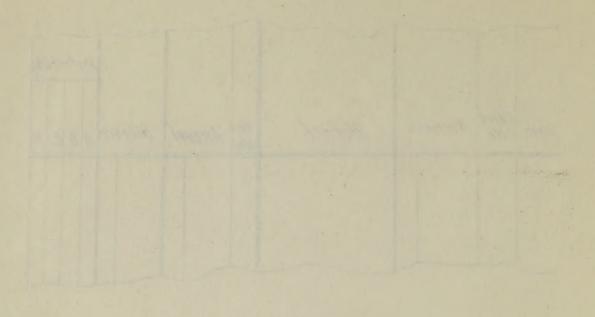


Cash Receipts

Concurrent with the necessity of control for cash disbursements is the necessity for control of all cash receipts.

Essentials to a good cash system is the daily deposit of all cash receipts, disbursements made by check, and petty expenditures made through the medium of a Petty Cash Fund.

Cash receipts in most all businesses are received from at least one of two sources--salesmen or direct collections. The concern whose methods we have been viewing and considering receive them from both sources. Direct collections as received in the Account-ing Department are noted on the form made out at the opening of the mail. Salesmen's collections, accompanied by check or currency are recorded by them on the following form:



Sonia Medudation

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To remedent mont of two sames of two sames and bowler even as the most seems of two and the most seems whom a seed as the seems whom a seed as the seems of the seed of the seed

MAIL INTO OFFICE A.B.C. Collec SAlesmen	Comp	PANY		II C. P. C.	et and Con educt ch ash Bar erev. Cash ash on a oney En	Lecks' LANCE BALANCE HAND		
Customers L Ada	ress	DATE OF BILL	F.	Amount of Check	Cash Disburse- Ment	Allow	Checks	Net Collect

All collections, direct and indirect, are entered on the Cash Receipts books in summary and by sheet numbers. Upon completion of summarized postings, the collection sheets are turned over to the Accounts Receivable clerk or clerks.

A sample Cash Receipts book follows:

Sheet No.		Nef Cash	TISCAUNT	Account	Gene	YA!.	Ledger
Office SAles- MAN	DATE	Receipts	SAles	Receiva be	Account	F.	AMOUNT
- I desid							
1 1 1 1 1 1 1 1							

				100	
	SARY SARY				

All collections, direct and indirect, are entered on the Cean Heceipts books in summerized by slacet numbers. Upon completion of summerized costings, the collection shoots are turned over to the Accounts Heceivable clerk or clerks.

A sample Jack Recolots book follows:

	NOFTLASK		

Entries and summaries from the Cash Receipts

Book are made on exactly the same principle as those

for the book of Cash Disbursements.

For the guidance of those executives affected by the daily fluctuations of cash balances, a summary statement is made out as follows:

CASh SUMMARY for DATE												
Previous BA/ANCE	<u>Meposits</u>	TOTAL	Isbursement	Amount on Deposity Available								
con the 's		16- 10										
And Comp												

Accounts Receivable

Office and salesmen's collection sheets, after being entered in the book of Cash Receipts, upon being received by the Accounts Receivable clerks are entered against the individual accounts. Following is a generally used form kept for the keeping and recording of Accounts Receivable by automatic bookkeeping machines:

Entries and summaries from the deah Receipts

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for the book of Casa Disbursaments.

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Accounts Receivable

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NAME		- /	RATING		CA	IRd No	
Address	In the 1		Limit				in the gine
Proof	JATE MEMO	F.	Debit	L	Credit	V	BALANCE
at the s	LOOK TITE		stipasit		diame.		
					1 300		Maria
				~			

The above form is a card kept and filed within the Accounting Department. Summaries are made from these forms monthly, which are checked against balances taken from the total of sales less the total of cash received on Accounts Receivable for that period. Accuracy and correctness of work is thereby insured.

Sales

Organizations selling specific and various types of units produced find it necessary to keep a Sales Register. Following is a sample or typical Sales Register:

provi	R/11	Namoos		Accounts		SAle	S	
DATE	No.	Name of Customer	F	Receivable	A	B	C.	D.
	1000	OFF IN TH		Married Land				The state of the s

The accounting Department. Summeries are made from these forms churching Department. Summeries are made from these forms churching, which are checked against balances teken from the total of sales less the total of cash received on Accounts Accounts Accounts Accounts Accounts Accounts Accounts Accounts Accounts thereby theorem.

Sales

Organizations selling appetite and various types of units produced find it necessary to keep a dates Register. to: Following is a sample or typical Sales degister:

	,		

In the type of concern producing on the general order basis, such a procedure is not necessary. On the following form, entries are made by the persons in control of the stock used in shipments ledger.

		Haber II	Z	raily A	Shipmen for	LATION LS
	Type of Mixture					
A	8	c	I	E	F	
10000	a sequences					
	-	rice from	too Sol	DUNE AT	0 200220	
			and and a	77 60 1		of transa

The above sheets are checked aginst the total daily shipments and then computed by the Accounting Department for
the total volume of Sales. Once a month summary computations which render the total value of Sales and Accounts
Receivable for that period are made and from which, the
proper entries are made.

The Journal

Designed to take care of all entries which cannot be handled on other books of original entry or subsidary ledgers is the Journal. Its rulings are very much In the type of concern producing on the general order basis, such a procedure is not necessary. On the following form, entries are nede by the persons in control of the stock used in shipsents ledger.

		1	
•			

The above among are checked aginet the total daily ship ments and then computed by the Accounting Derartment for the total volume of Sales. Once a month amamny computed tions which render the total velue of Sales and Accounts Accounts Accounts for that period are made and from maloh, the proper entries are made.

Incurat off

- Designed to take ours of all ontries which can-
- not be randled on other books of original entry or sunsi-

the same as the journal voucher used in large organizations to authenticate all entries made in it. A sample Voucher follows:

JATE JONTNA I Voucher Requested by ANTHORIZED by		No. Posted DATE	
Constitution of the consti	J PACE	Jebit Amount	Credit
Ir. Cr. Explanation			

Entries from the Journal are posted to the Ledger as made and individually; as the record of transactions or value fluctuations within it cannot be posted in summary due to their individuality.

Fiscal periods, when ended, mark the completion of business operations. Decisions, policies, and methods of management, crystallize themselves into the record of value fluctuation as shown in the balances of transactional classifications accounts. Analyzation of those accounts by the Accountant for the executives will be the basis for their further decisions, policies, and methods of management for the ensuing fiscal periods.

the same as the journal voucher used in large organizations

follows:

Matrice from the Journal are posted to the constant of transso-

Figure 1 periods, when ended, mark the completion of business operations. Decisions, politics, and mathods of management, organization as shown in the balances of transaction-value fluctuation as shown in the balances of transaction-al classifications ecocurts. Analyzation of those action basis for the Accountant for the executives will be the basis for their further decisions, politics, and methods of management for the enauing fiscal particle.

A Public Service Company

(The Edison Electric Illuminating Co.)
of Boston

In this company which belongs in the Public Service Utilities group the Accounting and Bookkeeping features of the entire organization come under the main heading of the Auditing Bureau which is composed of four departments:

The Billing Department

The Accounting Department

The Cashier's Department

The Collection Department

Therefore, they are to be taken up in the order that they affect the customer. If however, it was to be in the order of importance the Accounting Department would be first.

A. The Billing Department

The customer is affected by what is done by the Billing Department first. The Billing Department has 255 employees and is the largest in the Auditing Bureau.

There are approximately 380,000 meters in the system. This does not mean that there are 380,000 customers because they leave what they call "continuous service".

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There are approximately 380,000 meters in the eyetem. This does not mean that there are 380,000 oust tomers because they leave what they call "continuous service".

"Continuous service" is the leaving of the meters in the property where service has been supplied, even though the customers are discontinued. It saves the Company from going out and installing meters where their current will be used again. It also saves going out and re-fusing the meters, this work being all unnecessary because the amount of current that goes through the meters by unknown users is small, so why worry. This plan has resulted in a material saving to the Company.

They supply forty cities and towns with electric current. In all they have approximately 610 square miles of territory over which their lines run. There is no department in the Company, no person who is able to tell them just how many customers they have. They can make a rough guess, a pretty good guess by those supposed to know and it is between 340,000 and 350,000 customers.

There are 80 meter readers that read, or attempt to read 380,000 meters each month. They have a great many series meters in their lines and by series meters is meant meters that are installed on the customer's code of their meter. For example, if a concern owns a large building and lets part of the building to others, and desires to take advantage of a better rate, they will leave the entire amount of current billed to them and by a series meter are able to tell how much is used by each tenant.

"Continuous service" is the lesving of the meters in the property where service has been supplied, even though the oustomers are discontinued. It saves the Company from going out and installing meters where their current will be used egain. It also asved going out and re-fusing the meters, this work being all undecessary because the amount of current that goes through the meters by unknown users is small, so why worry. This plan has resulted in a material saving to the Company.

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There are 30 meter readers that read, or attempt to read 380,000 meters each month. They have a great many series meters in their lines and by series meters is meant meters that are installed on the customer's code of their meter. For example, if a concern owns a large building and lets part of the building to others, and desires to take advantage of a better rate, they will leave the entire amount of current billed to them and by a series meter are able to tell how much is used by each tenant.

The Billing Department is divided as follows:

- a. Contract Records Division.
- b. Order Reading Division.
 - c. Meter Records Division.
- d. Calculating Division.
- e. Billing Division.
- f. Statistical Division.
- g. Addressograph Division.
- A. The Contract Records Division has the filing and examination of all the completed orders. These orders are examined for correctness and then are filed a-way for future reference.
- B. The Order Reading Division.

on a certain date, of course, they cannot and do not wait until their regular meter reader goes there. They have to comply with their request and there are several men who read meters for the rendering of the final bill on orders of discontinuance. That is, the final readings of the discontinued customer.

of the meter slips are kept in order, so that they can be sent down to the meter reader at a certain time of the

The Billing Department is divided as follows:

b. Order Reading Division.

o. Meber Hecords Division.

d. delouisting Division.

e. Billing Division.

f. Statlatical Division.

g. Addressograpa Division.

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B. The Order Reading Division.

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of the meter alies are kept in order, so that they can be sent down to the meter reader at a certain time of the

month. The correlating of all these records getting them together, and making sure that every meter is read every month is an important part of the work.

D. The Meter Reading Division. There are 80 meter readers who go all over their 610 square miles of territory. Of course the portion of the meter books that are to be read the following day are sent to him the night or afternoon before and he sorts them among the 80 meter readers who obtain the readings. The readers return before five o'clock with the readings registered in their books.

E. The Calculating Division has for its work the figuring of the bills, also the verifying of the amount of the bill after it comes from the Billing Division.

Public Utility Machines. At one time the company made out all their bills by long hand. The machines take the place and type the bills. There are two set-ups on the key board, press the operating bar three times and the entire bill is made out.

The bill as typed by the machine is composed of four distinct parts and they are as follows:

month. The correlating of all those records getting them together, and making sure that every moter is read every month is an important ourb of the work.

of territory. Of nourse the portion of the meter books of territory. Of nourse the portion of the meter books that ore to be read the following day see sent to him the night or efternoon before and he sorts them among the CO ... The readers remain the portion that the readings registered in the books.

est not san entaiving principal out . The figuration of the sale o

P. The Silling Division uses is Surroughs

Fiblic Utility Machines. At one the the charactery made
out all their sills by long hand. The machines take the
place and type the bills. There are two set-ups on the
ker board, press the operating bar three times and the en-

To Resource al orinsem and the charge as follows:

1. The customer's receipt which shows the meter reading, the rate and the number of kilowatt hours, and then the amount column.

THE EDISON ELECTRIC ILLUMINATING COMPANY OF BOSTON
GENERAL OFFICES: 39 BOYLSTON STREET

COPY

PRESENT DATE PRESENT READING PREVIOUS RE	ADING *RATE KW-HR. AMOUNT
	THE REAL PROPERTY.
	THE RESERVE OF THE PARTY OF THE
PRATE B AREA IN 100 SQ. FT. RATE F DEMAND IN KILOWATTS	PREVIOUSLY RENDERED
SEE OTHER SIDE FOR DETAILS OF RATES	TOTAL AMOUNT DUE

The Customer's receipt.

2. The remittance coupon, which is detached by the collector as a record of the payment of the bill by the customer.

1. The customer's receipt which shows the mater reading, the rate and the number of kilowati hours, and then the smount column.

|--|

The Customer's receipt.

g. The remittence coupon, whith is detached by the collector as a record of the cayment of the bill or the customer.

The Remittance coupon.

THE EDISON ELECTRIC ILLUMINATING CO	MPANY OF BOSTON
GOPY	
	AMOUNT
PREVIOUSLY RENDERED	
TOTAL AMOUNT DUE	

3. The collector's coupon which is the documentary evidence of the amount received and the amount due from each customer which goes through his hands.

The Collector's coupon.

BL. P. B. NO.
AMOUNT
TOTAL AMOUNT DUE

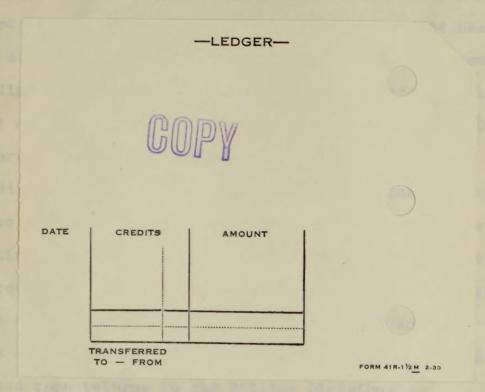
The demittance ocupon.

documentary evidence of the amount received and the needs.

smount due from each customer suitch goes through his needs.

The Collector's coucon.

4. The customer's ledger record coupon which has an important part of the work of the Accounting Department.



The Customer's ledger record.

G. The Statistical Division, of course, the Company wants to know how much money is charged for certain kinds of service such as large power service, certain rates that we have, etc. The Hollerithe Tabulating System is used for this purpose and holes are punched in cards showing the account, number, date, kilowatt, consumption, and amount and class of business. By running these cards through the

4. The customen's ledger record course which has an important part of the work of the Accounting.

The Gustomer's ladger record.

G. The Statistical Division, or course, the Com-

pany wants to know now much money is charged for certain rates tinds of service such as large nower service, certain rates onet we have, etc. The Holleribhe Tabularing System is used for this purpose and holes are punched in cards showing the secount, number, date, kilowett, consumption, and amount and class of business. By running these cards through the

tabulator much valuable information can be had with minimum amount of work.

ant part of the Billing Department. Blank bills are headed by the addressograph, and each of these different customers has a link which prints on the bill the name, address, and account number. There are enough to take care of 350,000 customers. They are arranged so that the bills for the right districts will be headed up at certain times of the month so that they can go to the Billing Division at the right time, or just the day the meter readers return with their readings. In other words the printing of the bills is done at about the same time that the meters are read for the same district. The meter reader first reads the meter and then returns to the Billing Division.

The Accounting Department is composed of three divisions with a total of 112 employees.

- a. The Bookkeeping Division.
- b. The Disbursement Division.
- c. The Mercantile Billing Division.
- A. The Disbursement Division has to keep a record of all the appropriations. If a certain piece of work has to be done by the Company an appropriation

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o, The Marcantlla Billing Division.

A. The Disbursement Division has to keep

e record of all the appropriations. If a certain piece not work bas to be done by the Company as appropriation

has to be made to cover the cost. The expense of the job is charged against this appropriation and the record of of the amount that they still have unspent in appropriation. It also has the making up of the payrolls, the paying of all bills after they have been OK'd by the Purchasing Department, the making out of checks for refunds to customers.

keeping of the lease accounts. Of course, they sell a great many appliances on the lease plan--deferred payment plan. The lease accounts are not the only accounts handled by the Mercantile Billing Division. They make a record of all appliances sold and charges in full to the customer's account. They make out bills for steam sold by this Company, meter rentals, time switches, and broadcasting charges, as well as everything the Company has to sell outside of electric current.

Department. At one time they kept the Accounts Receivable in a Boston Ledger. The Boston Ledgers were loose leaf ledgers with sheets about twenty four inches long and fifteen inches wide. By this means of keeping customers records, every charge that went into a customer's account whether it was for electric service or for mercantile billing had

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to be posted in pen and ink. Of course, when the payment came in, a credit pen and ink posting had to be made on the Boston Ledgers.

At the end of the business month, those all had to be added and balanced. It was some job to balance those ledgers and to get a total of all the ledgers that would balance with the amount shown on the Company's Trial Balance Sheet against Accounts Receivable.

On the extreme right of the bill prepared by the Billing Division is a ledger coupon. The detaching of this ledger coupon and inserting it in a tray takes the place of a debit pen and ink posting.

This is often referred to as the Stub Plan of Keeeping Customer's Accounts. When the customer pays the bill, instead of making a pen and ink credit posting, the stub is removed from the active tray and put in with the paid stubs. It is a tremendous saving of time and energy with just as good a record. By this means they are able to cycle-balance, which is a big help, rather than waiting until the end of the month. By cycle-balancing they mean balancing at any time during the month, a certain number of accounts.

They have 325 balancing sections of approximately

to be posted in pen and ink. Of course, when the payment came in, a credit sen and ink posting had to be made on the Easter Dedgers.

to be added and balanced. It was nonth, these all had to be added and balance alone of the segment and the ledgers that would balance with one amount shown on the Company's Irial Calance ance these egainst Accounts Menchunde.

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They have be specially specially of sopronded

1000 accounts each. A cycle-balance is taken at the time when the least number of stubs are in the active trays which is, of course, just prior to the sending out of the bills in the district. That means that instead of balancing all of their accounts at the end of the business month as they were doing with Boston Ledgers, they are now able to balance every day of the month a certain number of their accounts. That relieves a tremendous peak of work, and it makes the way smooth with no valleys and no peaks. An approximate total of their Accounts Receivable for one month would be \$2,283,446.52.

The Cashier's Department.

Every one is interested in this. This is where the payroll originates. The Paymaster goes to the bank every Thursday and makes up the payroll and it is brought from the Old Colony Trust to the Edison Building via Brink's Express. The occupants of this steel armoured car carry for protection revolvers. The most important business is accepting and distributing the money paid to this Company. Twenty-one to twenty-two pay stations and the same number of district offices. The paystations are paid at a rate of 2¢ per coupon. Collections are all assembled at the Cashier's office--regardless of whether they are made at receiving tellers, paystations, district offices, or collectors they

1000 seconds sach. A cycle-balance is taken at the time share than the least number of saubs are in the softly crays which is, of course, just arior to the second opt of the cills in the district. That means that instead of belancing all of their seconds at the end of the business month as they were doing with Boston Ledgers, they are now able to belance every day of the month a certain number of that it makes the way smooth with no valleys and no reaks. An approximate total of their Accounts Accounts Accounts for the

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are sent to this office with the remittance coupons.

They are all sorted into various districts corresponding to the same order of the Accounts Receivable.

After they are sorted into account number order, a listing is made by the Burroughs Adding Machines and these lists with the remittance coupons are sent to the Accounting Department. That is where the Accounting Department takes the unpaid stubs from the active file and places them in the paid file. There are two deposits made with the Old Colony Trust Company every day. The Brink's Express calling at nine o'clock and at twelve o'clock noon.

The Collection Department.

If the customers do not pay their bills, that is, where the Collection Department functions.

There are three divisions:

- a. The Collection Division.
- b. The Credit Division.
- c. The Receiving Tellers.
- C. The Receiving Tellers. You go to the Receiving Tellers window to pay money and get a receipt there of, also they give receipts for deposits for guarantee of payment of bills. Their main duty is receiving money and balancing, cash.

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B. The Credit Division. Their main duty is to pass on the credit of customers who apply for service, also to approve the sale of appliances for sums over \$7.50. Keeping the "black list" file is a duty of theirs, which means that if a customer goes off their lines owing a balance a record is made of it. If they ever come back on their lines this balance is transferred to the active account. The following statistics would indicate that most people are honest.

81% pay their bills without attention.
19% delinquents.

of 1% actual loss.

The number of notices which are sent out for one month to customers asking them to pay their bills were 24,667. All that were discontinued were 888. Of these 510 were restored immediately.

When they came home at night and turned on the switch and could not get any light they came in and paid the bill and service was restored.

8. The Oredit Division. Their main duty

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The Edison Electric Illuminating Company of Section.

PART THREE

The Appreciation Unit

beld and industrial purposes and in the sale of electri-

upon the goodwill of the community which is served by

it. To marit this good will and to retain it, a service
of high standard must be developed and reinteless and

this is only possible turning the afficient operation
of every department contributing to that service.

clude the Assembling and Deckkesping Features, navortheters, to preser to give an apprendentian of the University of the Remove I am sactoring a map which shows the terpliery amplied with continuous service twenty-four hours a day, every may in the year. The Argredistics Unit

The Edison Electric Illuminating Company of Boston.

This is a public utility corporation supplying an essential commodity to a community which cannot be supplied advantageously by the individual themselves.

The company is engaged in the production, transmission and distribution of electrical energy for household and industrial purposes and in the sale of electrical appliances.

The success of this enterprise is dependent upon the goodwill of the community which is served by it. To merit this good will and to retain it, a service of high standard must be developed and maintained and this is only possible through the efficient operation of every department contributing to that service.

Our study of this organization will only include the Accounting and Bookkeeping features, nevertheless, in order to give an appreciation of the immensity
of the company I am enclosing a map which shows the territory supplied with continuous service twenty-four hours
a day, every day in the year.

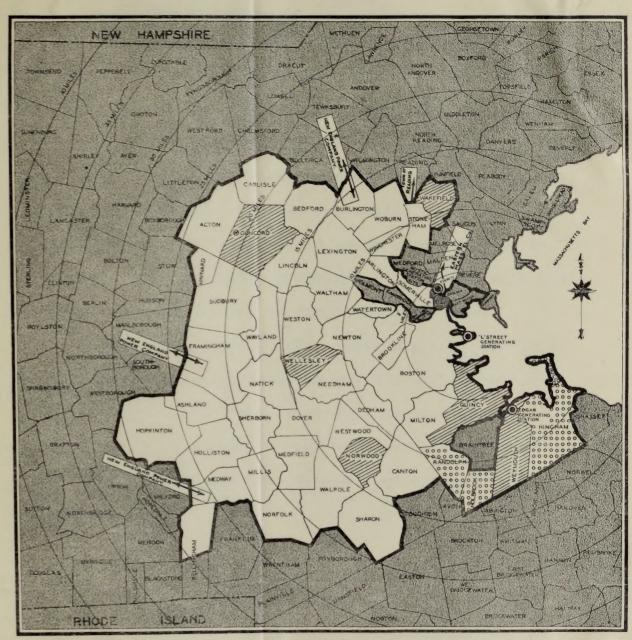
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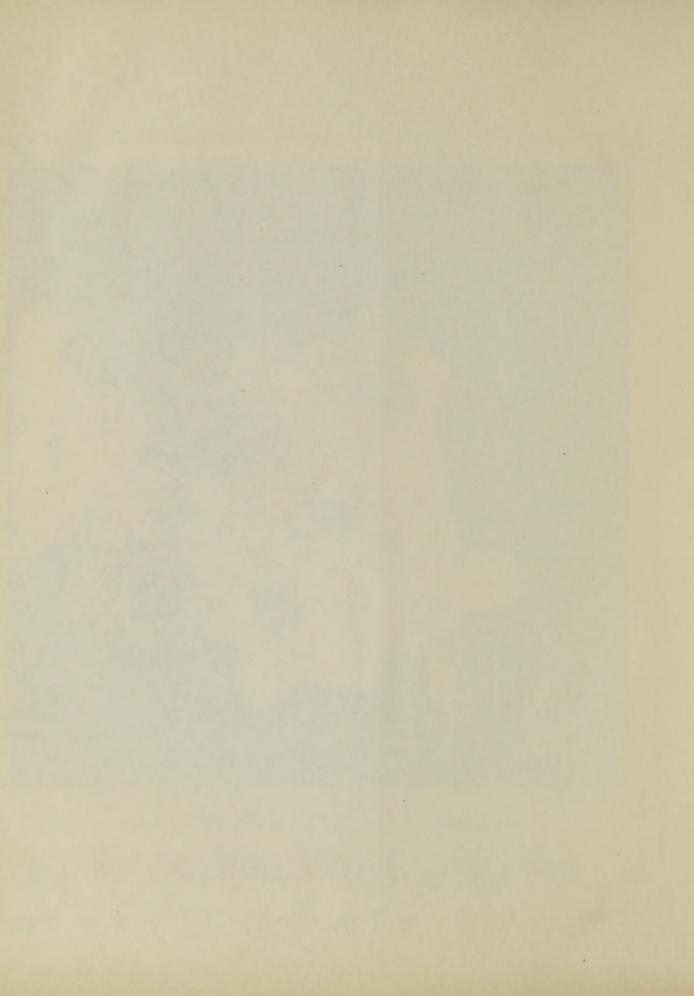
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FORM 1500

MAP SHOWING TERRITORY SUPPLIED BY THE EDISON ELECTRIC ILLUMINATING COMPANY OF BOSTON Jan. 1, 1930

In white areas, company furnishes total requirements and distributes locally; in cross-hatched areas, company furnishes total requirements in bulk; in dotted areas, company furnishes total requirements through an intermediary distribution authority; arrows indicate co-operative service furnished to other light and power companies.



The company supplies forty cities and towns with electric current. In all they have approximately six hundred and ten square miles of territory over which their lines run. There is no department in the Company, no person who is able to tell them just how many customers they have. They can make a rough guess and it is supposed to be between 340,000 and 350,000 customers.

Perhaps the most vivid means of describing the bookkeeping and accounting procedure is to start with the visit of the meter reader at our customers' homes.

There are eighty meter readers who go over the company's six hundred and ten square miles of territory and these eight meter readers attempt to read about 380,000 meters each month. Thus we can see the tremendous number of customers who must obtain good service from our company.

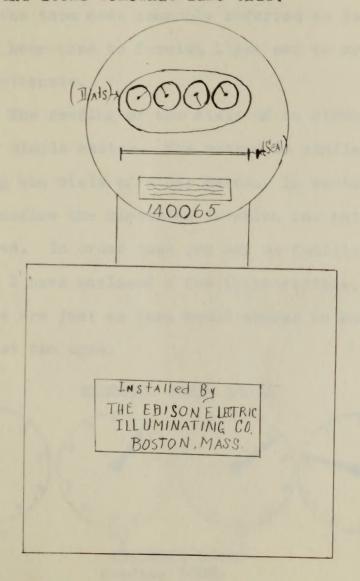
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and thuse sight entire reminers standard to read about the standard standard and thus we dry set in tremindues and the standard standard and the front our comments of standard and standard our standar

The Meter Reader's Visit.

The meter reader calls at a customer's home in a certain district at approximately the same day each month. He enters the home and goes directly to the meter. Mr. Sims, whom we will follow, is the meter reader in this district. The meter which he is to read is located in the basement of the home and looks somewhat like this:



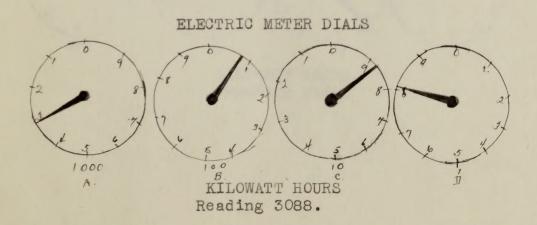
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He reads the dials on the meter which records the number of kilowatt hours which are recorded there. First we will consider what a kilowatt hour means. A watt is the unit of measure of electric power. For example a 15 Watt Electric-Light Bulb is one that requires a power of 15 Watts to keep it burning. A kilowatt hour which is the term most commonly referred to is a 1000 Watts per hour used to furnish light and to operate electrical appliances.

The reading of the dials of an electric meter is a very simple matter. The method is similar to that of reading the dials of a gas meter. In taking down the figures, notice the direction in which the pointer has just passed. In order that you may be familiar with the procedure I have enclosed a few illustrations. The dials shown here are just as they would appear to Mr. Sims when he calls at the home.



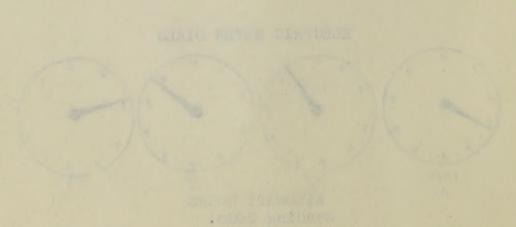
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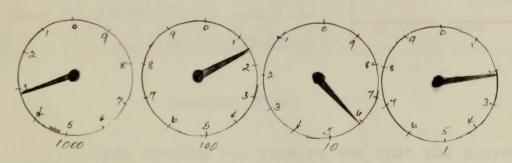
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Upon studying the illustration we notice that dial "A" records the 1000 kilowatt hours and in order to move the pointer of dial "A" one notch (the dials are divided into 10 parts or notches), the pointer of dial "B" must go around the entire dial. The pointer of dial "C" must go around the entire dial before pointer "B" moves a notch. The pointer of "C" only moves one notch when dial "D" has been covered. This electric meter is in the home of Miss Nellie Weickers and was read as shown by the illustration by Mr. Sims on February 24, 1930.

Another illustration follows which shows the electric meter of Miss Nellie Weickers when Mr. Sims called at the house on Mar. 25, 1930.

ELECTRIC METER DIALS



KILOWATT HOURS Reading 3162.

dent server or notice and illustrated and and order to be server and the property of the server of t

called at the house on ser. en. 1930.

ALARES ANDER DESIGNATION !



. 2018 mileson

In order to bring the reading of a meter more directly home to us I am including a card which is sent out by the Edison Electric Illuminating Company of Boston from the Billing Department. It is left in case a customer is not home on the day the meter reader calls at her home.

To Our Customer: As we are unable to read your electric meter will you	Card Left 4/24/30	Book	
kindly mark on these circles the position of each of the hands as	Account Num	ber	
they appear on your meter dial and return this card to us through	289.167		
the mail. The E.E.I. Co. of B.	Class Dis	strict	
FLECTRIC METER	Rate CArea	201-	
(100) (00) (00) (00) (00) (00) (00)	B& TONE	Sp.	
	1/24/30 322	ding	
Figures 1400 65, on, meter case			
Name Miss Mellie Kejckery	Kw-hr. 58		
Address 49 Stoughton St. Suite 2	Net Bill		
Date 4/24/30, Boston, Mass	Form 1409 B M 11	19 B	

Reading 3220.

Upon examing the card we see that the customer Miss Weickers is requested to mark on the dials the position of each of the hands as they appear on her meter dial and return this card to us through the mail.

The most to the contract of th

Booting Bear.

When we look at the meter dials on the card we find that it reads:

3220 Kilowatt Hours.

Possibly you have received such a card when the meter reader called at your home and could not get in to read the meter.

In order to make the work of the meter reader and the other necessary bookkeeping procedure more realistic we will call this customer's home we are visiting;

Miss Nellie Weickers 49 Stoughton St., Suite 2 Boston, Mass.

She became a customer, September 23, 1928 and an Order Form was made out upon the infromation supplied to the Contract Records Division which has the filing and examination of all the completed orders. These orders are examined for correctness and then are filed away for future reference. If Miss Weickers had not a meter in the home, that is, if it was a new house, the installation department would have taken care of and recorded the information.

There are, however, certain preliminary requirements for obtaining electric service. The person must apply at one of the company's offices and if the service applied for is of a standard character it will be furnished provided that certain specifications have been met with regarding the wiring and other electrical equipment. Also

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the applicant must make a cash deposit upon which the company pays interest at 5% per annum.

From the form of Order enclosed we find the name, address, meter no., date, rate, account number and the cash deposit of \$5.

Date 9/23 St. No. Suite S2 District Business Town Suite S2	Meter No. 5-115-2
Salesman 304 Miss Mellie Heickers	140065
Change of Name from	To date from
Phone No. Stal 44278 B	Sq. Feet Area
Service Applied for	Account No. 289-164
Remarks	Book Class K
	Date Reading 9/13 2237
Former or Present Customer at Year Disc. Row Customer Vear Disc.	
Business or Residence Address Years	Kw-hr. Net Bill
Deposit Owner of Property	
Credit THE E. E. I. CO. OF D	ORM 1760C 150M 9-29

This deposit is given back when the service is discontinued or terminated. The Order Reading Division of the company takes care of this. If a customer asks for a discontinuance on a certain date (by giving ten days notice in writing), this department sends out a man who reads meters for the rendering of the final bill on orders of discontinuance.

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constant and appears to given beek when the service is estated on comminged. The order Reading Strictle of the comminger of this. If a comminger service for a disconstitution of a disconstitution of a continue of the conti

There are several entries on this order form which will be taken up later on. At the present time, however, I do wish to bring out the matter of "Rates B". This means that Miss Weickers will be charged the "B" Residence Rate which is:

Rate:

- 8.5 cents per kilowatt hour for the first 2 kilowatt hours per month per 100 square feet of flour area. The minimum area of a house at this rate is 1000 square feet of floor area and therefore every bill to be charged at this rate will be for 20 kilowatt hours.
- 5. cents per kilowatt hours for the next 70 kilowatt hours per month.
 - 3. cents per kilowatt hours for the excess.

This "B" residence rate is figured in conjunction with the number of Square Feet Floor Area. The area of a single house is computed from the outside dimensions of the building and the number of floors. The minimum area, in each case, is 1000 square feet. Also there is a minimum charge of \$9.00 per year. A customer does not really become of profit to the company unless he is paying \$12.50 a year at the least.

We have seen how the electric meter is read and we will proceed with the study further. The meter reader enters into his meter book on a separate page for the cus-

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To have all modern through one about the contract visits on a second side of the contract visits on a second side of the contract of the contract visits of the contract of th

tomer Miss Weickers, the name, address, meter no., area, rate, the same as it is on the order form. Also on the first line at the bottom he enters the date and the reading of the meter.

A page from the meter reader's book follows on the next page.

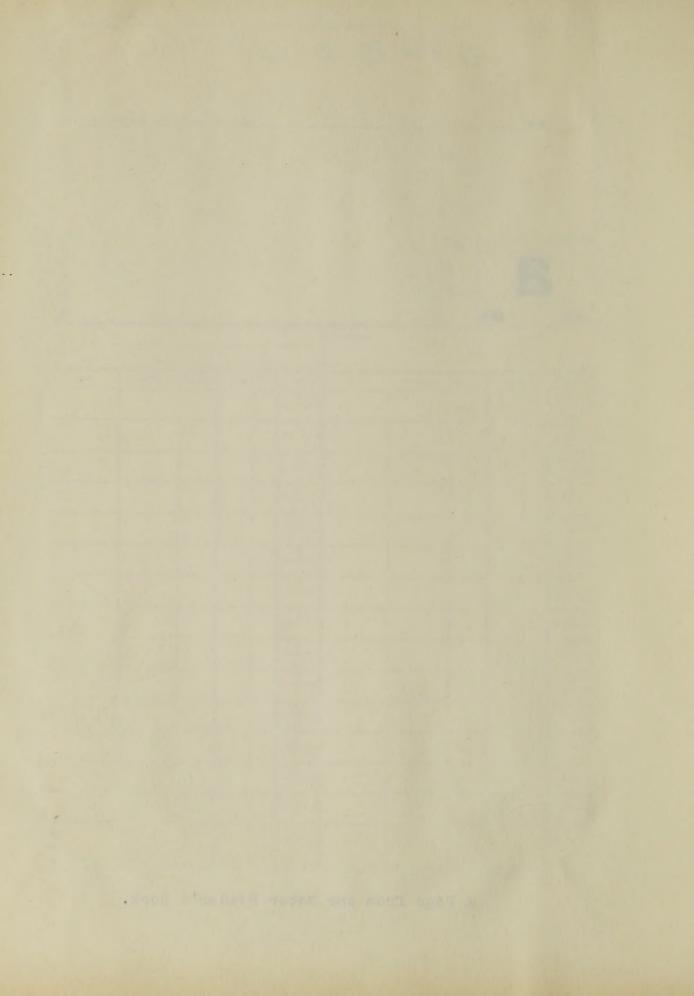
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Amp. No.	Same No. 14 0065 A Location Base.				ment			
Nov. 22 OMIT	Amount	٧	Date	Reading	Kw. hre.	Amount	V	
Oct 25 292/ 1/3	7 0							
Sept 23 Sept 23	2 mos							
AUG 23 OMIT	\$4.400							
July 24 page pr	D							
SIMS 272/2/	D							
S/MS 2694 25	5							
51M5, 2661 26	B							
SIMS 2643 36	B			-				
SIMS 2607 41 Feb 23, 25/1								
MAX 1919 23 66 48	В		10r 24					
Maxfield 23/8 64	M		Sweet	3220	58	B		
SIMS 2454 50 Nov 22 2101 11	M		Sweet	,3/62	74	B		
SIMS 2404 41	M		Sweet	3088	80	B		
SIMS 2363 31	M		Sweet	3008	81	Bomos		
9/23/28 2232			Dec 21 Sweet	2927	93	\$6.05B	1	

A Page from the Meter Reader's Book.



The electric meter for September 23, 1928 reads, 2232 kilowatt hours. This is the date the new customer comes onto our lines and of course, she receives no charge. These meter slips are examined and kept in order so that they can be sent down to the meter reader at a certain time of the month by the Meter Records Division of the Company. The correlating of all these records and making sure that every meter is read every month is an important part of the work.

From the meter book page we find that Mr. Sims, our meter reader, called at Miss Weickers and read the meter October 22 as being 2363 kilowatt hours. While at the meter he deducted last months reading from this months.

Oct. 22, 1928 2363 Kilowatt Hours

Nov. 8, 1928 2232 " " " "

At the end of the day before five o'clock the reader returned to the office with his book and turned it into the head of the Meter Reading Division. The head of this division sees that the readers turn in their books each night and receive one covering the homes they are to call on the next day.

The cladenia maper for west tone 33, 1922 roads.

comes onto our lines and of course, and receives do sidery.

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The Meter Reader's Book in the Calculating Division.

The following morning the meter book containing
Miss Weickers' page went to the Calculating Division Office
where they first checked over the amount of kilowatt hours
used. The employees of this office are highly skilled and
at a glance they would verify the number of kilowatt hours
used by Miss Weickers for October.

Oct. 22, 1928 2363 kilowatt hours

Sept. 8, 1928 2232 " " "

Thirty-one kilowatt hours were used the first month since Miss Weickers came on to the service lines of the Edison Electric Illuminating Company of Boston.

The next month Mr. Sims called at Miss Weickers' home and the meter read, 2-4-0-4. The clerk would again find the amount of electricity used for November.

Nov. 22, 1928 2404 kilowatt hours

Oct. 22, 1928 2363 " " "

The clerk would look at the figures of Mr. Sims, the meter reader, and see if they agreed. His figures show 41 kilo-watt hours as the amount used in this column for the month of October. The clerk would then check this page as being correct and pass on to the next page for the next customer.

The following morning the moter book containing with white west the total or the state of the st

Oct. 22, 1928 8361 ,SS . 500

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month dance and to dear or we arrow at the first street series and of or ones are voted self of the following of the following of the series are voted as the following of the series of the series of the following of the series of the following of the series of the ser

The next month Mr. Sins called at Miss Wolchers'

none and the meter road, 2-6-0-4. The clerk would again find the amount of electricity used for vovember.

nov. 22, 1928 Same to add the server

00t. 28, 1938 8265 "

The clerk would look at the figures of ir. Alms, the meter reader, and see if they agreed. His figures show at kilo-wate nours as the amount used in this column for the mount of the clerk would then check this page on being or detable. The clerk would then check this page on to the sext onge for the next one cast one that agreement.

The next month the meter reader called at Miss Weickers and the meter dials read, 2-4-5-4. The clerk when she received the meter book in December would perform the usual operation

Dec. 22, 1928 2454 kilowatt hours

Nov. 22, 1928 2404 " " "

Then she would look at the meter reader's figures and see if they agreed. Of course, if the meter reader had subtracted wrong at the meter this would be the opportunity to change and correct the amount of kilowatt hours used. In this way we would be sure that the bill would not be made out wrong and the customer would not be charged for a greater amount of electricity than she used.

Another meter reader, Mr. Maxfield called in January and entered the reading of the dials as 2-5-1-8. When the clerk received the meter book that month she found the amount of kilowatt hours used, as follows:

Jan. 23, 1929 2518 kilowatt hours

Dec. 22, 1928 2454 " " "

She checked back on the figures of the meter reader's and found them to be correct.

The next month the meter reader called at like clerk week and the clerk the called act the clerk week she received the meter book in December would person the test that the usual operation

Dec. 28, 1989 Stat kilowett naura

ACT THE BEST 'SE . ACE

Then she would look at one mater reader's riqueed and inif they agreed. Of course, if the acter reader had subtreated wrong at the mater this would be the opportunity
to analyse and correct this abound of kilowatt noise and
is this way we would so once that and bits would not be
made out wools and the contoner would not be charged fornewless out wools and the destrictly then the opening for-

Another meder reader, in marifeld called in
Joney and entered the reading of the diels as 2-5-1-2.

Tours the olerk received the motor cook that month she
found the anoma of milowate bours used, we follows:

Jan. 25, 1950 - Sid Milowate bours

Dec. 22, 1920 - 1924 " " "

bus a repen repen wit le server on the bearing page.

In February Mr. Maxfield called again and took down the readings of the meter dials as, 2-5-6-6. When the clerk received the meter book that month and turned to Miss Weickers page, she checked over the figures.

Feb. 23, 1929 2566 kilowatt hours

Jan. 23, 1929 2518 " " "

Mr. Maxfield also showed 48 kilowatt hours as being used by this customer, Miss Weickers, during February.

Mr. Sims the other meter reader called in March and the meter dials read 2607 as shown on the meter page of Miss Weickers. The calculating clerk when she received the meter book would check the figures for the amount of kilowatt hours used.

Mar. 25, 1929 2607 kilowatt hours

Feb. 23, 1929 2566 " " "

The meter reader also showed the kilowatt hours as being 41.

The meter reader called again in April and took down the reading of the meter dials 2-6-4-3. Then he called at the next home on the street and performed the same thing. The meter book was received by the clerk in the Calculating Office and she found that Miss Weickers

does he alone belief plottes. The ventues of control of the contro

Jun. 25, 1999 9518 " "

in. Marticle also showed 48 kilowatt hours as being used by this customer, hiss Metalores, during February.

Mr. Sims the other meter reader called in March

and the meter disks road 2007 as shown on the meter page of Miss Meters. The calculating clark whom and received the the meter book would enough the figures for the samuel of Missesty hours used.

mar. 25, 1929 2607 Milonath Boure

Feb. 23, 1029 9536 " " "

noted as squad stewells and bracks pair rebest today out.

does the reading of the meter dista 2-5-4-5. Then ne does the training of the meter on the street and performed the same thing. The meter book was recaived by the clerk in the Calculatine Office and and found that him white water of the calculatine of the meter board that him which was recaired that hims workers

used 36 kilowatt hours for this month.

Apr. 24, 1929 2643 kilowatt hours

Mar. 25, 1929 2607 " " "

This was checked against the meter reader's figures and found to be correct.

In the manner illustrated above, the calculating clerks check over the readings and the amount used for every customer on the companies lines. One can just barely imagine the number of books and entries which are checked when we remember that there are about 350,000 customers who are supplied each day of the month with electricity.

The clerk who checked the meter book which contained Miss Weickers' meter readings found the amount of kilowatt hours for the following months to be correct with the figures of the meter readers, Mr. Sims and Mr. Sweet.

May 23, 1929 26 kilowatt hours used.

June 24, 1929 25 kilowatt hours used.

July 24, 1929 27 kilowatt hours used.

On August 23, 1929 Mr. Sims called at Miss Weickers' home but she was not in and he left the meter reading for that month blank. The Billing Division Office would send a card as illustrated on page seven to Miss Weickers' home

. Admon wind gul arred admodia be been

App. 24, 1899 - 240 Milesett hours

mar. 25, 1920 9002 "

" 35

This was endered against the meter reader's filtimes and found to be correct.

In the manner lilustrated above, the deloulable

ordered and the companies lines. One can just berely every contends on the dempanies lines. One can just berely imagine the mumber of books and anticles antich are character when we remember that there are about 350,000 contends who were another with electricity.

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- June 24, 1920 Es dinwell nouve used.
- July 24, 18 30 clared woods vones wood

and she would show on the printed meter dials the position of the pointer on her electric meter dials.

Mr. Sims called at her home September 23, and the meter read 2-7-9-1. When the clerk in the Calculating Division Office received the meter book she would verify the meter reader's figures, as follows:

Sept. 23, 1929 2791 kilowatt hours

July. 24, 1929 2721 " "

She looked at the amount of kilowatt hours the meter reader entered for the month and found them to be 70. We notice on the meter page on page one hundred the amount of \$4.90 to the right of the kilowatt hours column. This is the amount of Miss Weickers bill for the two months period. The manner in which this amount is arrived at will be taken up later on in our study.

The clerk checked over the meter readers figures for the following months and found them to be correct.

Oct. 23, 1929 43 kilowatt hours used.

Nov. 22, 1929 00 omitted (not at home).

Dec. 22, 1929 93 kilowatt hours used. (this was for two months)

Jan. 23, 1930 81 kilowatt hours used.

Feb. 24, 1930 80 kilowatt hours used.

and she would show on the printed meter dials the position of the pointer on her electric meter diels.

wr. Sins called at her home September 25, and the mater read 2-7-9-1. When the clerk in the Calculating Division Office received the meter book she would verify the meter reader's rigures, as follows:

Sept. 23, 1929 E791 Milowatt hours

July. 24, 1988 8721 " "

She looked at the emount of kilowatt hours the meter reader entered for the month and found them to be 70. We notice on the meter page on page one hundred the amount of 64.90 to the right of the kilowatt hours column. This is the smount of Miss Weighers till for the two months perion.

The manner in which this amount is arrived at will be taken up later on in our study.

The clock checked over the meter readers figures

for the following months and found thom to be correct.

dob. 23, 1929 45 kilomate hours used.

Nov. 22, 1928 00 omlined (not at home).

Jen. 23. 1930 Bl kilowatt nours usen.

Peb. 24, 1980 80 kilowett hours used.

On March 25th, Mr. Sweet called at Miss Weicker's and took down the reading of the meter dials as being 3-1 -6-2. When the clerk in the Calculating Division was checking this book she checked over the kilowatt hours used in the following manner:

Mar. 25, 1930 3162 kilowatt hours

Feb. 24, 1930 3088 " " "

She looked at the meter reader's figures in the kilowatt hours column and found them to be correct.

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The Billing Department

This department is the largest in the Auditing
Bureau of the company because all of the bills for the
350,000 customers must pass through their hands. There
are two hundred and fifty-five employees in the Billing
Department besides the numerous machines which have been
installed to facilitate the tremendous amount of work which
has to be done to see that the company receives the proper
revenue for the amount of electricity sold each month.

The meter book which we have studied went to the Billing Division of this department after it was verified by the clerks of the Calculating Division. Formerly the billing clerks made out all the bills of customers by long hand but now with the introduction of the machines which I am about to describe and illustrate, this work has been considerably reduced.

The Edison Electric Illuminating Company has fifteen Burroughs Public Utility Machines. The first cut shows how the machine looks just before the operator sits down to commence her work. This first illustration shows:

- a. Burroughs Chair which can be adjusted to suit individual requirements.
- b. Burroughs Meter Book Holder specially designed to enable the pages to be quickly turned and held in place mechanically. The pages of the book may be turned

This descripts on all regret is the interest in the for the same and the for the same and the for the same to be said of the first hands. There are two made one and fifty-five employees in the Billion of the Billion bear the two mades and the treatment as and the first the treatment of work we led the treatment of the treatment of work we are the treatment of the treatment of the treatment.

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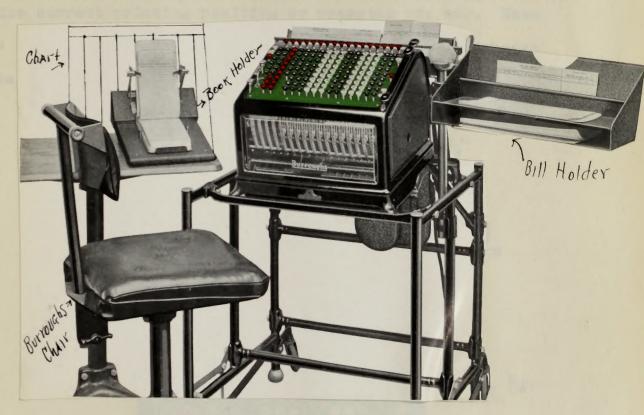
The Edison Surroughs Public Utility Machines. The first ont of these one shows how the metains looks just before the openeter with the commons nor work. This first little traction shower down to commons nor work. This first little traction shower

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designed to enable the paper of to come and aldere to be remade to design and to bear and the bear of the the bear

by one hand.

- c. Burroughs Ledger Table which is used for holding meter book holder, rate chart, or other necessary data.
- d. Burroughs Bill Holder which has three sections, one for addressed bills, one for completed bills, and one for blank bills. This is of all-metal construction.



BURROUGHS PUBLIC UTILITY MACHINE

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tions, one for blank bills, one for completed bills, and for completed bills, and one for canetaction.

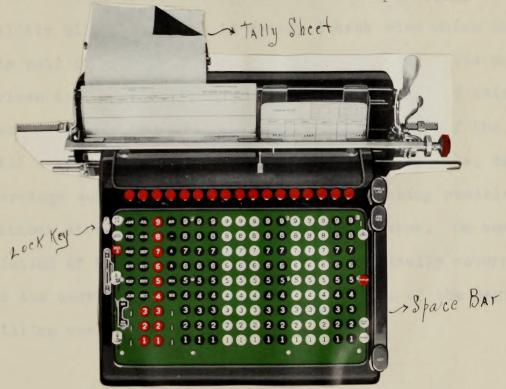
Features That Speed

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DUNCOUNTY PUBLIC CLUMNING

The second cut shows the face of the key board of the machine. Directly above the platen (this is at the top of the machine around which the bill is rolled into place) is a magazine or container to hold a supply of bills which are quickly fed into the machine. Paper guides and adjustable stops are so arranged that the bills drop to the correct printing position by pressing the bar. When a bill is completed the carriage is automatically thrown back and it releases the bill for the next operation.



FACE OF THE KEY BOARD

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PAGE OF THE MEY BOARD

As the bills are printed carbon impressions are made on a recap or tally sheet that feeds around the platen like a sheet of paper in a typewriter. The various totals accumulated in the machine are printed at the bottom of these sheets by the use of a total key. A better view of the tally sheet is to be seen in the next illustration. It is the roll which may be seen in the upper right corner of the cut.

The third illustration of the Burroughs Public Utility Billing Machine is really a back view which shows the roll for the tally sheet and slso the automatic motor driven carriage which simplifies the operation of this machine. The same figures printed on the body of the bill are automatically repeat-printed on the stubs, the carriage automatically selecting each printing position without attention on the part of the operator. On completion of the bill, the carriage automatically returns to the correct position for the first item of the next billing operation.

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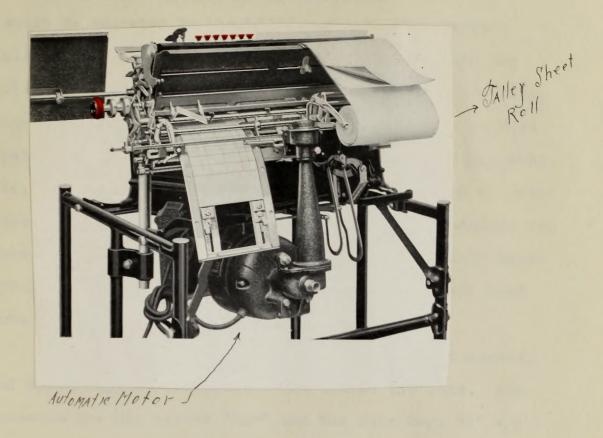
house of the total and the tally sheet la to be seen in the

next illustration. It to the roll which may be seen

in the under right corner of the one.

The third illustration of the Surrough Fiblic ville, onlike in the state of the short with a short of the state of the short of the sho

BACK VIEW OF THE BURROUGHS PUBLIC UTILITY BILLING MACHINE.



We now have a definite idea of the appearance of these billing machines. They are arranged in rows in a very large room with a billing operator stationed at each one.

PUBLIC OTHERS SELECTED SELECTIONS

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of bione biliting monatoes. They are errorged to rows to a very large room with a billion operator stationed at each one.

The meter book has now come to Machine 9, which is operated by the billing clerk, Miss Harriet Allen, who places it in her book holder. She has her bills in the bill holder and is ready to print the bill. She turns the pages of her book until she comes to Miss Weickers'. She sees that the last months reading, that is, February 24, 1930 made by Mr. Sweet was 3088 kilowatt hours. Turn to the meter book page for Miss Weickers and see if this is correct. Also turn to the Electric Meter Dials on page ninety-three, and see how Mr. Sweet read the dials and check over the work.

Before Miss Allen starts her work the morning of March 28, she has entered and locked the date. She presses the key marked "Mar" and the date keys "2" and "8" and then presses the lock key in the upper left hand corner of the machine.

Then turning to the Reading column of the meter page she presses down the keys 3-1-6-2 and then enters the previous reading as of February 24, 3-0-8-8 kilowatt hours. Then she presses the space bar which extends along the right hand side of the key board as shown on the cut on page 110. She looks at the kilowatt hours column on the meter page and finds that it is 74. This was

The meter book has now come to Machine 9, which is operated by the billing clerk, Miss Harrist Allen, who piaces it in her book holder. She has her bills in the bill holder and is ready to priot the bill. She turns the pages of her book until she comes to Miss She turns the pages of her book until she comes to Miss Walckers', She sees that the last months reading, that is, Pebruary 14, 1030 made by Mr. Sweet was 3088 kilowatt hours. Turn to the meter book page for Miss Welckers and see if this is correct. Also turn to the Electric Meter whals on page ninety-three, and see now Mr. Sweet read the diels and check over the more.

Sefore Miss Allen starts her work the morning of merch 28, and nes entered and looked the date. She bresses the key marked "Mar" and the date keys "8" and then oresses the look key in the upper left hand corner of the machine.

Then turning to the Reading column of the meter page she present down the keys 2-1-6-2 and then entern the previous reading as of Rebrusny 2d, 3-0-8-8 kilowatt hours. Then she presses the space bar which extends and long the right hand side of the key hoard as shown on the meter page 110. She looks at the kilowatt hours column on the meter page and finds that it is 76. This was

verified by us and the Calculating Division. Then she looks at her chart which stands back of the meter book. Study the illustration on page twenty. This chart is for Residence "B" customers. Without going into a great amount of detail, I have enclosed a rough graph of this chart.

RESIDENCE CHART "B".

Kilowatt Hours by Areas My Amount								
100 Kubr.	DOSG FT	KHE	100 sqft Ambrut	12 Kirks	2005911 AMOUNT	Krh	AMOUNT	
58	#3.60	58	367					
74	\$4.40							

By running her eye down the kilowatt hours column, Miss Allen finds 74 and directly across \$4.40 in the 1000 square feet area column. You will remember that Miss Weickers' home was found to be of an area of 1000 square feet and in the Residence "B" Rate. Then the clerk presses the keys B-1-0 (for rate of 1000 sq. ft. area) one med to work which attends back of the sater book.

study the illustration on page twenty. Its chart is

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E EDISON ELECTRIC ILLUMINATING COMPANY OF BOSTON
GENERAL OFFICES: 39 BOYLSTON STREET

COPY

MAR 28, 1930

MISS NELLIE WEICKERS
49 STOUGHTON ST. SUITE 2,
BOSTON, MASS.

289-167

hi	PRESENT READING	PREVIOUS READING	*RATE	KW-HR.	AMOUNT
5	3162	3088	BlO	74	4.40
	First i	ODEYATION	2'rd	Oberation_	
	1 100 SQ. FT.		PREVIOUS	LY RENDERED	
SIDE FOR DETAILS OF RATES			TOTAL A	MOUNT DUE	

THE EDISON ELECTRIC ILLUMINATING COMPANY OF BOSTON 39 BOYLSTON STREET

GOPWAR 28, 1930

MISS NELLIE WEICKERS
49 STOUGHTON ST. SUITE 2,
BOSTON, MASS.

289-167

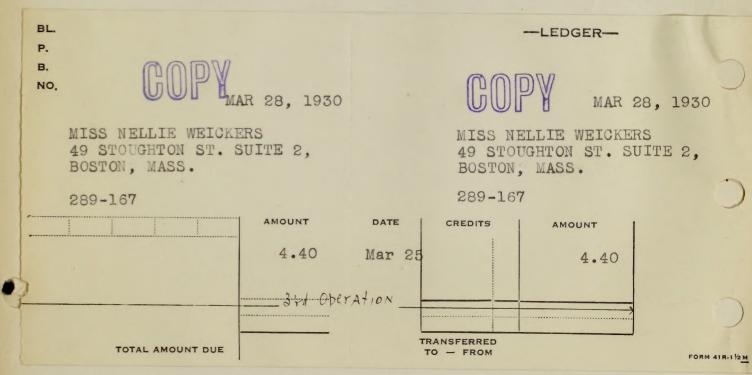
	AMOUNT
	4.40
sird operation.	
PREVIOUSLY RENDERED	

TOTAL AMOUNT DUE

then the keys 7-4 for the kilowatt hours used. Then she presses the space bar for the completion of the second operation.

The third and last operation is to enter the amount, 4-4-0 and press the space bar and the carriage jumps over so that the four parts of the bill are stamped with the amount. The four parts of the bill after Miss Allen has run it through the billing machine is shown.

I have marked the three operations she has performed in making out the bill and in order that the above description may be brought out more clearly it is necessary to study this bill of Miss Weickers' for the month of March.



then one May's V-4 for the Lilowath hours whoe. Then are oreseed and the application of the second

The triangle of all properties to the properties of the order of the contract of the contract of the order of

In order to fix the process of making out the bill in our minds we will look at the meter book page of Miss Weickers' for the last month taken by Mr. Sweet. The meter reads according to his figures 3220 on the meter page enclosed on page one hundred. In order to see how he arrived at this we turn to page ninety-five, which shows just how the meter dials record this reading.

Miss Allen the billing operator first locked the date of the reading, that is, April 24 in the machine that morning so that all the bills to be made out would have the same reading date.

The first operation is to press the keys 3-2-2-0 for the present months reading and then she presses the keys 3-1-6-2 for the previous months reading and then she strikes the space bar and this operation is completed.

The second operation, she looks at our Chart "B" as illustrated on page one hundred fourteen, and in the 1000 square feet column opposite kilowatt hours 58 we find \$3.60. If Miss Allen had looked in the 1100 sq. ft. column our 58 kilowatt hours would have amounted to \$3.67 which would have been wrong. Then we press the keys "B"-1-0 for the rate, and 5-8 for the kilowatt hours and then strike the space bar.

In order to fix the process of meking out the bill in our minds we will look at the meter book page of Miss Weighers' for the last month taken by Mr. Sweet. The meter reads according to his figures 3820 on the meter page enclosed on page one hundred. In order to see how is arrived at this we turn to mage ninety-five, which show he arrived at this meter disle record this reading.

Miss Allen and billing overstor first locked the date of the reading, bust is, April 24 in the ma-

E EDISON ELECTRIC ILLUMINATING COMPANY OF BOSTON
GENERAL OFFICES: 39 BOYLSTON STREET

COPY

Apr. 27, 1930

MISS NELLIE WEICKERS
49 STOUGHTON ST. SUITE 2
BOSTON, MASS. 289-167

PRESENT READING PREVIOUS READING *RATE KW-HR. AMOUNT

24 3220 3162 B10 58 3.60

PREVIOUSLY RENDERED PREVIOUSLY RENDERED TOTAL AMOUNT DUE TOTAL AMOUNT

THE EDISON ELECTRIC ILLUMINATING COMPANY OF BOSTON
39 BOYLSTON STREET

CAPT. 27, 1930

MISS NELLIE WEICKERS
49 STOUGHTON ST. SUITE 2
BOSTON, MASS. 289-167

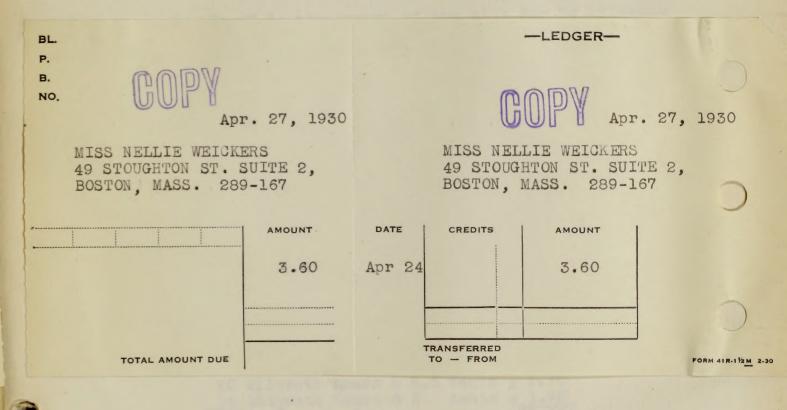
	AMOUNT
	3.60
PREVIOUSLY RENDERED	
TOTAL AMOUNT DUE	

- Di

the space bar.

The third and last operation is to enter the amount by pressing the keys 3-6-0 and strike the space bar and the machine enters the amount upon the four parts of the bill automatically.

Miss Weickers' bill for the month of April is shown herewith just as we made it out on the billing machine with the help of Miss Allen, the billing operator.



The side of the Destroy of the properties the contract of the

Belilite and no the st whenter he day discuss them.

In order to appreciate the immense saving in time this chart "B" is to the operator and also to show how the Residence "B" customers bills are figured we will do these two bills out in detail.

Looking at our meter slip we find that 74 kilowatt hours were used in March.

Residence "B" Rate (look on page 10.)

20 kilowatt hours @ 8.5 cents = 1.70 54 kilowatt hours @ 5 cents = 2.70 74 " = 4.40

\$4.40 is the amount of the bill for 74 kilowatt hours of electricity at the "B" rate for a house area of 1000 square feet. This shows that electricity cost the customer, Miss Weickers about 6d per kilowatt hour: $\frac{.059}{4.40}$

To compare this with a more common commodity we would find that if a dozen of eggs cost us 60¢, one egg would cost 5¢.

Again we look at our meter page for April and we find that 58 kilowatt hours were used.

Residence "B" Rates (look on page 10.)

20 kilowatt hours @ 8.5 cents = 1.70 38 kilowatt hours @ 5 cents = 1.90 58 " " \$3.60

\$3.60 is the amount of the bill for Miss Weickers for April.

Looking at our noter allo se find that Ye kilo-

water hours word uned in March.

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CV.I = escent towns & s.5 cents = C.70

Mailowate noire & cents = E.70

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To comment that white a more commodity we would be that that the dozen of aggs white was 60%, one egg would cont 50%.

Again we look as our meter page for Agril and we fill that the deal of the seas of the seas of the seas of the seas of the season of the seaso

Mosidence "B" Rates (200k on care 10.)

Se kilowets hours 0.5 cents 1.70

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The Addressograph Division

The Graphotype.

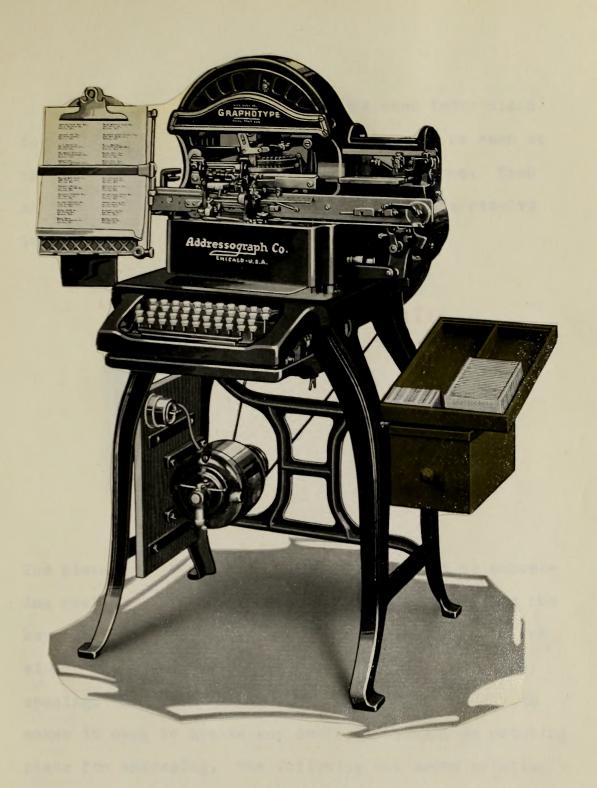
We will next visit the Addressograph Division.

Here is where the blank bills are headed by the addressograph machines. First we come to a young lady who is
standing at the side of an embossing machine known as a
Graphotype. The enclosed illustration gives one a clear
conception of what this machine looks like. We notice
the holder on the left of the machine with the names and
addresses printed thereon. At the front of the machine
we observe with surprize a key board exactly as one would
find it on a typewriter. Just below this is to be seen
the electric motor which evidently furnishes the power
for this machine. At the extreme right side of the machine we notice a metal container for the plates which
are to be used.

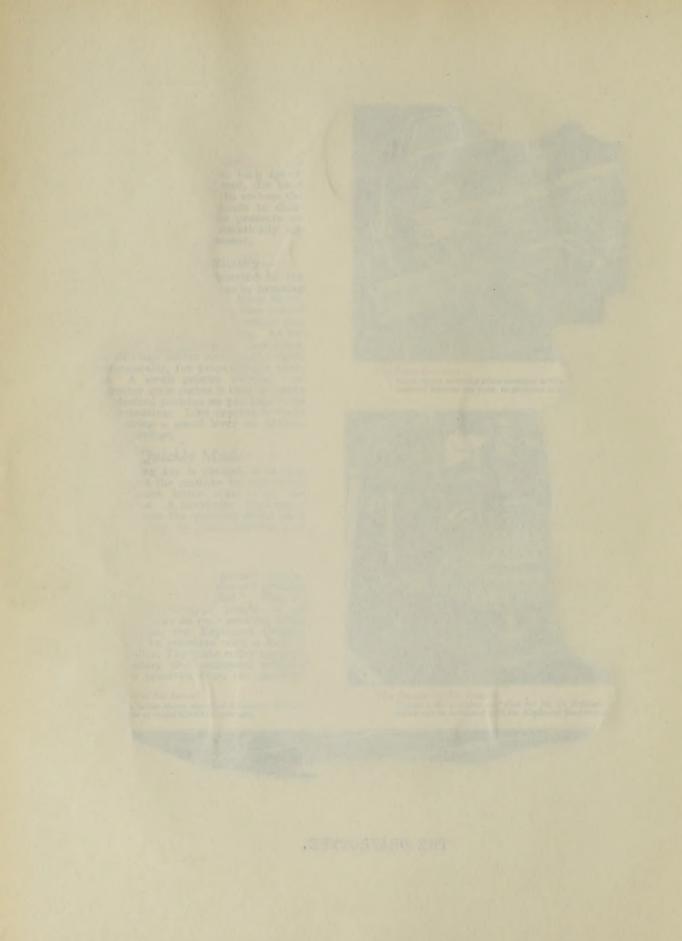
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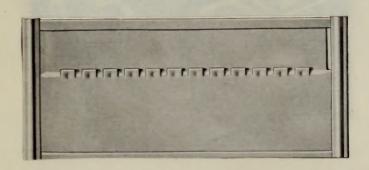


THE GRAPHOTYPE.



The operator places a blank card index plate in the jaws of the plate carriage which may be seen at the top of the illustration on page thirty one. Then she presses a little lever that opens them to receive it.

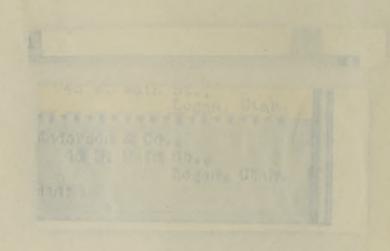
"A" Card Index Plate



Blank Index Card.

The plate carriage is then moved to the left to embossing position just like any typewriter carriage. As the
keys are pressed and type embossed, the carriage moves
along to the right, automatically, for proper letter
spacing. A small pointer moving over character scale
makes it easy to locate any desired position on printing
plate for embossing. The following cut shows printing
plate carriage with a blank printing plate inserted between the jaws, in position to emboss type on it.

The operator places a blank card index plate in the jews of the plate carriage which may be seen at the top of the illustration on page thirty one. Then she presses a little lever that opens them to receive it.



Blank Index Card.

The plate carriage is then moved to the left to emboseing position just like any type-writer carriage. As the
keys are pressed and type-embossed, the carriage moves
along to the right, autometically, for proper letter
spacing. A small pointer moving over character scale
makes it easy to locate any desired position on printing
plate for embossing. The following out shows printing
plate carriage with a blank printing plate inserted between the jaws, in position to emboss type on it.

The position of the plate carriage with reference to the rest of the machine may be seen just above the word "Addressograph Co." on the illustration on page one hundred twenty.



The Plate Carriage

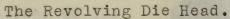
When the operator presses a key in order to print on the blank index plate, a punch in turn presses down on one of the forty-four dies and the letter is embossed on the blank plate. The following cut shows the punches and dies for the forty-four different characters which can be embossed with the Keyboard Graphotype. The pressure on the punches and dies is automatically applied by the electric motor which we have noticed on the machine illustrated on page one hundred twenty.

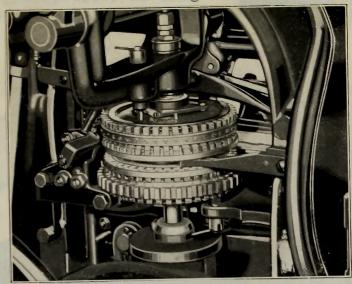
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The Plate Carriage

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We will now return to the young lady operating the Graphotype Machine. She has inserted the blank index card into the plate carriage. The inclosed illustration shows her seated before the machine. Her eyes are on the printed customer's list on the left of the machine and the electric motor is turned on.

The Revolving Die Road.



we will now return to the young lady operating the draphotype Machine. She has inserted the blank index cerd into the plate carriage. The inclosed illustration shows her seated before the mechine. Her eyes are on the printed customer's list on the left of the machine and the electric motor is turned on.



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The Operator at the Granictype Machine.



I have already provided which the control within blank or



Desire the party of

Cahelyps.

We also notice in the cut shown on page one hundred twenty-four, that the operator has her hands resting on the keyboard in readiness to start typeing. An illustration of the keyboard on the machine is shown herewith.

It is a regular standard typewriter keyboard.



GRAPHOTYPE KEYBOARD.

The young lady comes to the first name and address on her customer's list which is:

S. T. Anderson & Co.,
45 E. Main St.,
Boston, Mass.

She types this on to the index plate and when she has finished it looks like the cut on the following page.

We notice that a paper index card is being inserted in to the top part of the metal index plate. This paper

end egan no mwade suo ella ni eciton osle ew

hundred twenty-four, thet the operator has her hands resting on the keyboard in readiness to start typeing. An illustration of the keyboard on the machine is shown herewith.

on as

Speedy Keyboard Graphotypu

Same Keyboard—same operation as sometiment to pewriters. Any typical common operate. Address places for your lest can be more pul-kills true. Embosses to different characters—amond letters, accourage and concernation marks.

Stest Way to "Make Up" Places

Where speed in handling charges and additions to your list is prime imperiance. Keystern Gracestype is recommended. To per cont faces that where the other branchestypes. Fasters as a final address places!

(For Faction Manufacture See these

ORAFROTYI'E KEYEDARD.

The bos enen Jaril ens of some the livet name and sd-

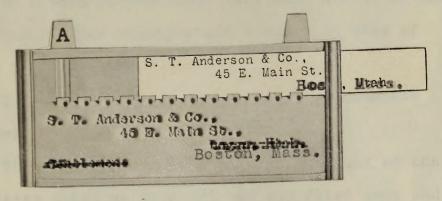
desag on nor quacomer's lis watch is:

8. T. Anderson & Jo., AS S. Mein Dt., Boston, Mass.

She types this on to the index plate end when she had finished it looks like the cut on the following page. We notice that a paper lindex card is being inserted in to the too part of the metal index plate. This paper

index card is printed from the address plate itself.

These paper index cards come in strips which are put through the Addressograph machine and later cut to fit the top of the metal address plate. The purpose of this is to save time in filing and therefore they are known as "Visible Index Cards."



METAL ADDRESS PLATE & PRINTED PAPER INDEX CARD.

After the operator finishes the above address plate she places it in the first compartment of the container at her right and takes a blank plate and inserts it into the machine. She is already to type the next customers plate. These card index plates after being filled out and with the typewritten name and address on paper at the top, are then filed in their proper drawer in the files. They are then ready whenever the addressograph operator requires them.

index card is printed from the address plate itself.

These paper index cards come in strips which are put

through the Addressograph machine and leter cut to fit

the top of the metal address plate. The purpose of this

is to save time in filing and therefore they are known

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out and with the typewritten name and address on paper at
the top, are then filed in their proper drawer in the files.
They are then roady whenever the addressoursph operator
requires them.

The Automatic Feed Addressograph

Then we visit the Automatic Feed Addressograph which prints through a ribbon the name of the customer on the blank bills of the company. The enclosed cut shows this ingenious machine with the operator standing at the right side of it, guiding the bills as they pass through. We notice in the lower left hand corner of the cut, page one hundred twenty-eight a close up view of the hopper in which the bills are stacked ready to be automatically fed to printing position by a pneumatic feeding device.

The operator first takes a drawer full of the address plates which we have printed and filed away and places it into the upright magazine of the machine.



Upright Magazine.

Meanwhile she takes the blank bills illustrated on page 129, and stacks them in the feed hopper where a pneumatic suction feed pulls over the top end of a single

Then orists through a ribbon the name of the customer on the black bills of the company. The enclosed cut on the black bills of the company. The enclosed cut shows this ingenious machine with the operator standing at the right side of it, guiding the bills as they can operate. We notice in the lower left hand corner of the cut, cage one numbered twenty-eight a close up view of the hopper in which the bills are stacked ready to be automatically fed to printing postaton by a posmentic feeding daylog.

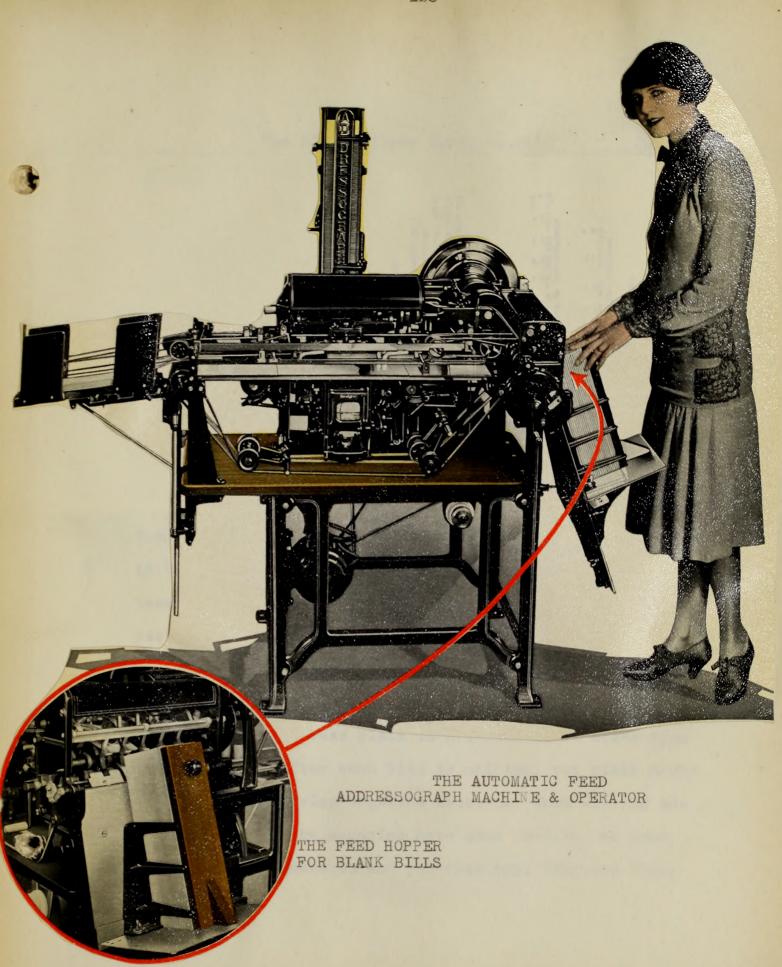
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115

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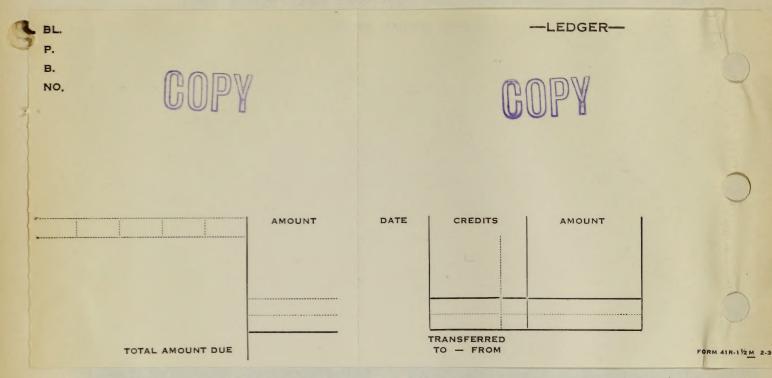
Desentablit alite anald and cared one althousand

on page 129, and stocks them in the feed hopper where a pneume ic suction feed outle over the top end of a single



	MINATING COMPANY OF BOSTO 39 BOYLSTON STREET	N THE EDISON ELECTRIC ILLUMINATING COMPANY OF BOS 39 BOYLSTON STREET
	SOPY	COPY
PRESENT READING PREVIOUS REA	DING *RATE KW-HR. AMOUN	TI AMOUNT
A IN 100 SQ. FT. MAND IN KILOWATTS SIDE FOR DETAILS OF RATES	PREVIOUSLY RENDERED	PREVIOUSLY RENDERED TOTAL AMOUNT DUE

The Blank Edison Electric Bill



form separating it from the others, and swiftly passes it to feed rollers that start it through the machine between carrying belts. The following cut shows the bill passing through the machine between the carrying belts.

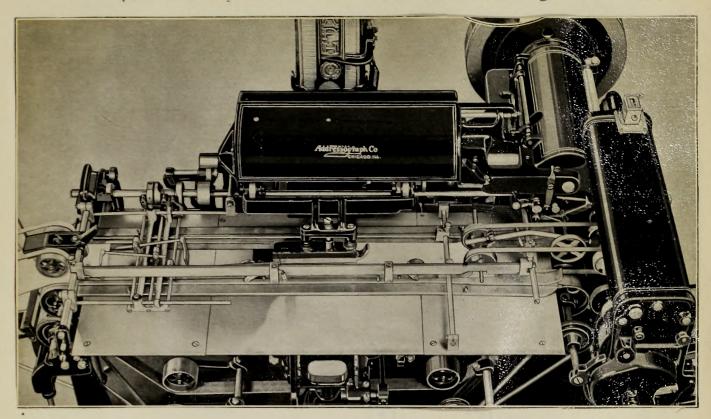
Also we may see the stamp lever which makes the impression through the ribbon on to the bill. This stamp lever also holds the address plate in position as it comes from the magazine. After each bill is printed, the plate drops down into a receiving magazine beneath. When all the address plates in the magazine have gone through, we take the drawer full beneath and put them back into the file.

Tour march contraction and

To so feet tollors ones abert it torough the monaton to the torough come continued to the monaton tollow the monaton to the monaton to the monaton to the toler toler

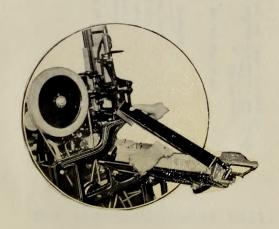
The Top View of the Addressograph

(The forms pass over the flat table from right to left.)



Removing Address Plates. .

(After printing address plates pass in their original card index filing order into receiving magazine beneath machine.)

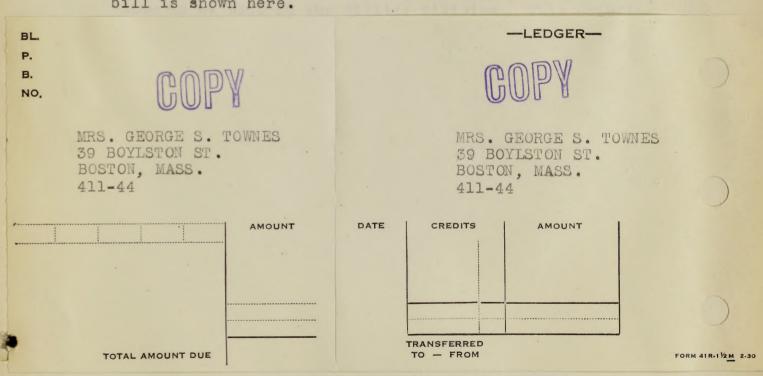


E EDISON ELECTRIC ILLUMINATING COMPANY OF BOSTON THE EDISON ELECTRIC ILLUMINATING COMPANY OF BOSTON GENERAL OFFICES: 39 BOYLSTON STREET 39 BOYLSTON STREET MRS. GEORGE S. TOWNES MRS. GEORGE S. TOWNES 39 BOYLSTON ST. 39 BOYLSTON ST. BOSTON, MASS. BOSTON, MASS. 411-44 411-44 PRESENT READING | PREVIOUS READING | * RATE KW-HR. AMOUNT AMOUNT PREVIOUSLY RENDERED PREVIOUSLY RENDERED EA IN 100 SQ. FT. R SIDE FOR DETAILS OF RATES TOTAL AMOUNT DUE TOTAL AMOUNT DUE

The carrying belts move continuously, but the form is held stationery at a printing position by means of stop fingers. When the machine is started the plate marked:

MRS. GEORGE S. TOWNES 39 BOYLSTON ST. BOSTON, MASS. 411-44

has dropped into printing position, the ribbon runs thruand the metal plate type presses down at the appointed
spot four distinct times as the bill is carried from the
right shelf to printing point and out. The addressographed
bill is shown here.



The Addressogrpahed Bill.

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SOUTH THE SOUTH ST.

per agent come collect and a mark comment styl event fatter and back on the mark form and the collect and the

The next plate drops into place and is ready for its impression on the next bill as it follows through the machine.

As you stand by the machine with the operator you can hear the four rhythmatic beats as each bill is stamped when it passes through. The speed of this marvelous machine is amazing, 7500 impressions can be made per hour. The address plates after printing pass in their original card index filing order into the receiving magazine beneath. The bills are automatically stacked and ready to be sent to the Billing Division. This printing of the name and address is done before the Billing Division receives the bill. There are enough of the index plates for the 350,000 customers of the company. The bills are arranged so that the right districts will be headed up at certain times of the month and thus they go to the Billing Division at the day the meter readers return with their readings in their meter books.

The next the speed of the part and the ready of the temperature of the temperature.

As you see that the responsed a bord of the teath of the company o

The Return of the Bill to the Calculating Division.

The bill (see page 117) which we made out with the help of the billing clerk goes from the Billing Division back to the Calculating Division where it is checked for accuracy of the number of kilowatt hours used, correctness of area under "B" rate, and correctness of amount charged for kilowatt hours. The Calculating Division clerks perform the same operations as the billing clerk did in making out the bill. Of course, the clerks do not have to print on the bill the result of their computations and with the help of the charts, they are able to verify the bills very rapidly.

Then they check the Addressographed Bill against the original meter reader's book page. Turn to the illustration of the meter book slip on page one hundred. They check over the bill as to the accuracy of name and proper entry of kilowatt hours as shown by the subtraction of the previous and present reading. When they find it correct, they stamp a "B" or "M" in the amount column of the meter page on the line for that month. This stamp means that the bill is already to go out to the customer. The "B" opposite the kilowatt hours for April 24 on Miss

The bill (see page 117) which we made out with the nelm of the billing clark goes from the Billing Division back to the deleniating Division where it is ensured for scennedy of the number of kiloweth hours used, correctness of area under "B" rate, and correctness of amount charged for kiloweth hours, fire Calculating Division clorks perform the same operations as the billing clark did in making out the bill, of course, the clerks but says to print on the bill the result of their computerions and with the bill the result of their computerions and with the bell the result of their computerions and with the bell the result of their computerions and with the bell the course, the clerks

The original meter reader's book page. Thro to the illnetration of the meter needs slip on page one numbred. They
oben over the bill as to the accuracy of hade and prooer entry of kiloweth hours as shown by the subtraction
of the previous and present reading. When they find it
correct, they atamp a "B" or "M" in the amount column of
the meter mage on the line for that month. This stand
coans that the bill is already to go out to the subtoner.
The "B" opposite the kiloweth hours for April 2s on Miss.

Weickers' meter book slip, means that the bill we made out (see page 117) was found to be correct in every detail by the Calculating Division Office.

The Calculating Division as we have see has for its duty the verification of the work of the meter readers and also of the billing clerks and in this way they assure the customer that he will be charged only for the amount of electricity he has actually used and at the proper rate. This function is of uttermost importance since it reduces any friction which might arise between the customer and the company. Also it is the foundation of Goodwill for the customer feels confidant that his bill has been made out correctly.

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The Osionisting Division as we have see has for its dusy one verification of the work of the mater readers and else of the billing clerks and in this way they assure the customer that he will be charged only for the emount of electricity he has sobusily used and at the proper rate. This function is of uttermost importance since it reduces only into the mater and the company. Also it is the foundation of Goodwill for the customer reals confident foundation of Goodwill for the customer reals confident foundation of Goodwill for the customer reals confident that his bill has been made out correctly.

The Statistical Division

If we recall the description given of the Billing Machines, we will remember that as the bills are printed, carbon impressions are made on a recap or tally sheet
that feeds around the platen like a sheet of paper in a
typewriter. See pages one hundred eleven and twelve. The
various totals accumulated in the machine are printed at
the bottom of these sheets by the use of a total key. I
have enclosed a tally sheet which we will study.

Upon examining the upper portion of the sheet we find that the Billing clerk enters the number of the machine, date, operator, and account or bill number. We notice that it is the machine which Miss Harriet Allen operated when we made out with her help our two bills for Miss Weickers.

Then we look at the first entry in carbon and we find that it shows Miss Weicker's bill for April 27. Her name and address does not appear, merely her account number 289-167. She is the first entry to be made on this for April 24, 1930. The next entry is for another customer who is in the "A" or Commercial rate. On this particular date only thirty-three bills were made on machine

If we recell the description (iven of the Hilling Mashines, we will remember that as the bills are printed, derbon impressions are made on a recap or tally sheut
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No. 9 by Miss Allen and the totals appear at the bottom under "30" on the right hand margin.

After the Billing clerk operator has printed all of her bills for the day, she sends this Tally Sheet to the Calculating Division where they make a proof of the totals with the bills themselves. For example, we find the total of the kilowatt hours checked because it is the exact difference between the totals of the present and prior columns.

Then the Tally Sheet is sent to the Statistical Division where statistics of amounts of electricity sold and earning are compiled. The statistical clerk first classifies the number of bills on the sheet (the total number of bills couldnot exceed 100) according to rate "A" and "B". Also she finds the number of kilowatt hours and amount under these different rates.

First we will consider all the number of bills, kilowatt hours, and amount under Rate "A". We look at the small chart at the bottom of the sheet which shows the classification under Rates "A" and "B" for the thirty-three bills. The machine list of the bills was checked by "F.B.". The computations were verified by "K.H.".

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the small ones, and distinct the same of the same shore and the same of the sa

The Tally Sheet.

(To study open both ends of the sheet.)

Kw-HR. @ B½¢	Kw·HR. @ B∮	KW-HR. @ 7½₽	Kw-HR. @ 5½¢	Kw·HR. @3⅓∮
ADD ½¢ FOR EACH ODD ITEM	ADD 50¢ FOR EACH BILL	ADD 1/10 FOR EACH ODD ITEM	ADD 14 FOR EACH	ADD 1/4 FOR EACH ODD ITEM
,		ADD \$3,00 FOR EACH BILL	ADD \$43.00 FOR EACH BILL	ADD \$233.00 FOR EACH BILL
437	1801	2168		
8.5	.08	.075		
2185	11/1/08	10840		
3496	3	15176		
11/5	11/19/08	151.00		
37.175	1,22	162,01		
.020	146 86	1/2/1		
37.	1-16.00	6.00		18,000
		168.6		

1.07	No, of Bills	Kw-HR.	@	Амоинт
	11	437	B%\$	37/17
RATE	6	1801	8\$	146 86
"A"	2	2168	7%6	168 61
Dues			5%\$	
		///	31/29	
TOTAL "A"	19	4406	AE BILL	352.64

	Kw-Hr.	AMOUNT
BILLING MACHINE	4867	383 55
SUBTRACT "A"	4406	352 64
BALANCE "B"	461	30 91

COPY

TALLY SHEET BILLING DEPARTMENT

ELECTRIC REVENUE-MACHINE BILLING

LOAD DATE.

DATE	METER READINGS			ARKA		
FRESENT READING	PRESENT	FRIOR	RATE	1N 100	EW. HOURS	AMOUNT
1pr 24,	1220	3162	В	10	58	3.60
Apr 24	1120	722	A		398	35 34

78036 73169 4867 L Totals: Apr.24 73169 4867

	KW-HR.	AMOUNT
19	4406	352 64
14	461	30 91
32	4867	383 55
	MACHIN LIST	VERIFIED
	19/32	

The Tally Sheet.

(To study open both ends of the sheet.)

The bills under rate "A".

RATE	No. of BILIS	Kw. hr	AMOUNT
A	19	4406	# 352.64
contin union	there was	done bills	agualed at the dis

Upon the opposite side of the Tally Sheet we find that a clerk in the Statistical Division has divided the nineteen bills in the following manner in the chart marked Rate "A".

	No. of B. 1/8	Kw.hr.	@	AMOUNT
Stop	11	437	8/24	37.17
RATE	6	1801	84	146-86
"A" '	2	2168	7/24	168.61
				- 11 P231
Total"A"	19			SPO MONOR

Eleven of the bills in rate "A", only used enough kilowatt hours of electricity to be charged the first step rate of $8\frac{1}{2}$ / per kilowatt hour.

Six of the bills used enough kilowatt hours of electricity to be in the second step rate of 8¢ per kilowatt hour.

Two of the bills used enough kilowatt hours of electricity to be in the third step rate of $7\frac{1}{2} \not q$ per kilo-

Upon the opposite side of the Tally Sheet we find that a clerk in the Statistical Division has divided the nimeteen bills in the following manner in the chart marked Rate "A".

Eleven of the bills in rate "A", only used enough kilowatt hours of electricity to be charged the first step rate of 8% per kilowatt hour.

Six of the bills used enough kilowatt hours of electricity to be in the second step rate of 8¢ per kilowatt hour.

Two of the bills used enough kilowett hours of -olk! see third step rate of 7% per kilo-

watt hour.

The total number of bills being 19, kilowatt hours 4406, and the amount \$352.64.

I am going to show how we arrived at the a-mounts which these various bills equaled at the different step rates.

Step 1. 437 kilowatt hours @ $8\frac{1}{2}$ # \$37.17

437
.085
2185
3496
37145
.025
37.170

There were 11 bills which makes 6 even and 5 odd bills which they charge $\frac{1}{2} \emptyset$ for.

Step 2. 1801 kilowatt hours @ 8¢ = \$146.86

1801
.08
144.08
3.00
147.08
22
146.86

They charge 50¢ for each bill and there were 6 in all.

There were 11 bills under Step 1 but in Step 2, there were a great deal more and those running for two months are prorated by subtracting 22¢.

Step 3. 2168 kilowatt hours @ $7\frac{1}{2}d = 168.61

2168
.075
10840
15176
162.600
.01
162.61
6.00
168.61

They charge $\frac{1}{2}$ for each odd bill and there were 2. Also they add \$3.00 for each bill in this step and there were 2 in all.

watt bour.

The total number of bills being 19, kilowatt hours 4406, and the amount \$552.54.

I am going to show we entitled at the amounts which these various bills equaled at the dirferent step rates.

Step 1. 457 kilowatt hours 8 856 = 537.17

A57
.085 There were 11 bills which
2105 makes 6 even and 5 odd bills
2405 which they charge at for.
37145

Step 2. 1801 kilowatt bours @ 8d = \$146.86

1801 They charge 50¢ for each bill and there were 6 in all.

144.03 There were 11 bills under Step 5.00 1 but in Step 2, there were a great deal more and those run147.08 great deal more and those run-.22 ning for two months are pro-

Step 3. 2168 kilowatt hours - 754 : \$168.61

10880 They obarge \$\delta\$ for each odd bill and there were 2.

15176 Also they edd \$2.00 for each bill in this step and there were 2 in all.

162.60 were 2 in all.

The charge for each one of these steps may be seen at the chart at the top part of the back of the Tally Sheet.

In order to arrive at the kilowatt hours and amounts under the "B" rate and to check the work of the Calculating Division, we see another chart which takes the totals of the Billing Machine and subtracts those under the "A" rate. The balance is the amount under the "B" rate.

Then we turn to the machines which have replaced manual labor in the gathering of very accurate and detailed information. The full equipment needed for the compilation of statistical information consists of a punching machine, a sorting machine, and a tabulating machine. The tabulating and sorting machines are operated and controlled by a punched card on which the data to be tabulated is perforated.

These machines are so flexible that they will electrically compile, distribute, or analyze any kind of information possible to be represented by figures or code symbols.

The tabulating card which can be arranged to suit the needs of any business is the basis for the operation of the machine. The desired facts of analysis

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which have been transposed into numerical code or symbols are first punched on a tabulating card each hole represents one of ten digits. The work of punching is rapidly performed by an experienced operator. It permits of positive verification before the card is used in compiling information.

After the cards are once punched the task of gathering the information is entirely automatic and reports of a statistical nature can be obtained by merely putting a bunch of cards through the sorter and tabulator. Little clerical work is required and the process of sorting and tabulating is merely a matter of a few hours just prior to the need for such analytical details.

The essential point to be observed in arranging such columns is to have the various items to be punched in an order that is progressive from top to bottom of the memorandum from which the data is to be punched.

We will now make a study of how these machines are used to apply in the Statistical Division of the Ed-ison Electric Illuminating Company of Boston.

We will first watch the operator of the punching machine who takes a blank card and places it into the machine.

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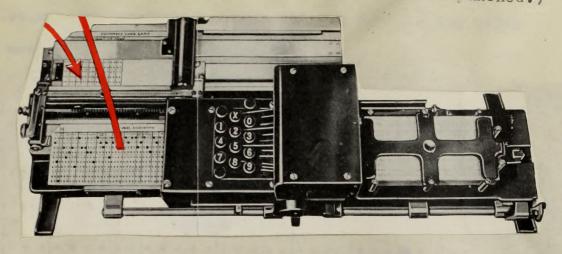
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We will first waten the operator of the punching machine who takes a blank card and places it into the machine.

The Electric Key Punching Machine. (The carriage is thrown open to show the card punched.)



The operator desires to punch a card to show the infromation on our Tally Sheet regarding Rate "B". Upon looking at our Tally Sheet on page one hundred thirty-seven, we find that under Rate "B" there are;

14 Bills
461 Kilowatt hours
\$30. 91 Amount

April 24, 1930.
Rate "B" 17

First she presses the key "4" for the month at the top of the card. Then she presses the keys "2" and "4" for the day of the month. Then in order to get to the Number of Bills column she presses the blank key shown above to skip the District, Ledger, Customer, Present Meter Reading, and the Blank column.

The Electric Key Punching Mechine.

(The carriage is thrown open to show the card pudohad.)

the inframetion on our Tally Sheet regarding Rate "B".

thirty-seven, we find that under Este "8" there see;

14 81118 April 84, 1850.

First she presses the key "4" for the month

at the top of the cend. Then she presses the keys "2" and "4" for the day of the month. Then in order to get to the Number of Sills column she presses the blank key shown above to skip the District, Louger, Gustomer, Fresent Noter Resding, and the Blank column.

Then when she comes to the "Number of Bills" column she strikes the keys "1" and "4" and the holes are punched on the card inclosed.

		1	2	3		5	6												150											×	5				1	2	3	OF 4	perat	tor 8	7	8	9	
220	Day	7 v 1	8 Dist	9	nth 10	11 adge	12 er		(Custo	ome			A		eser Re		g					1	X K.v	W. D	emar	d	0	K. W	. Ho	urs	-	0		AI	X	nt			R	ate	c	ne	46
)	0	0	0	0	0	0	0	0	0	0	10	0	0	0	0	0	0	Q	0	0	0	0	0	0	01	9	0 1	0 (010	0	0	0	01	0	0		0	0	0	0	1	0	0
-Form		1	1	1	1	1	1	1	2	1	1	11	1	1	1	1	1	1	1	1	1	1	1	1	1	O'	1	1	1	111	1	0	1	I.	1	1	1	1	0	0	1	1	1	1
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13	3	6	6	6	6	6	6	6	6	6	6	16	6	6	6	6	6	6	6	6	6	6	6	6	6	61	6	6	6 (516		6	6	6	6	6	6	6	6	6	6	6	6	6
HA		7	7	7	7	7	7	7	7	7	7	17	7	7	7	7	7	7	7	7	7	7	7	7	7	71	7	7	7	7 7	7	7	7	7 1	7	7	7 1	7.	7	7)	7	7	7
5		8	8	8	8	8	8	8	8	8	8	18	8	8	8	8	8	8	8	8	8	8	8	8	8	81	8	8	8 8	3 8	8	8	8	8	8	8	8	8	8	8	8	8	8	8
6	3	9	9	9	9	9	9	9	9	9	9	19	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9 !	9 9	9 9	9	9	9	91	9	9	9		9	9	9	9	9	9
1		5	3	4	5		7			10	31	12	13	14	16	16	15	10	18	20	21	22	23	24	25	26	27	28 2	9 3	0 3	32	33	34	35	36	37	38	39	50	638	97	43	44	45

RESIDENCE "B" RATE OF TALLY CARD.

Then the operator makes a blank punch to move the card to the second division of the next column which is the "K.W. Hours" column. Then she strikes the keys 4-6-1.

The operator makes a blank punch to move the card over the first division of the "Amount" column and then strikes the keys 3-0-9-1 for the amount of the bills.

The final step is to enter the number classif-

Then when she comes to the "Number of Bills" column she strikes the keys "1" and "4" and the holes are punched on the card inclosed.

RESIDENCE "B" RATE OF TALLY CARD.

Then the operator makes a blank punch to move the card to the second division of the next column which is the "K.W. Howrs" column. Then she strikes the keys

The operator makes a blank punch to move the card over the first division of the "Amount" column and then strikes the keys 3-0-9-1 for the amount of the bills.

The final step is to enter the number classif-

ication for that rate. Rate "B" residence is always number 17 and General Rate "A" is always number 12. The extra punch of the zero in the Rate column does not mean anything as far as the number of the Rate is concerned. The card is then placed in Residence "B" File.

Every month the Statistical Division makes out a Comparative Analysis of Electric Revenues for that particular month. The operator would take from the files the punched cards for the month of April which are classified on this sheet and place them in the hopper or stacker and the cards would travel over the surface plate at the top of the sorting machine and drop into their proper groups "A" to "N". The card illustrated would drop into group "B" cards. On page one hundred forty-five I have enclosed the form used to find the Comparative Analysis of Electric Revenues for the month.

lostion for that date. "A" residence is always munber IV and General Rate "A" is always number it. The extra punch if the sero in the Hene column does not mean enginies as far as the number of the Rate is concerned. The card is then placed in Residence "B" File.

Avery most of the Statistical Division makes out of the first control of the first control of the first first control of the state of the first control of the state of the first control of the first control of the first control of the co

FORM 306A 150-12-29

GOPY

THE EDISON ELECTRIC ILLUMINATING COMPANY OF BOSTON

COMPARATIVE ANALYSIS OF ELECTRIC REVENUES

MONTH OF April 1930 KILOWATT DEMAND KILOWATT-HOURS SOLD ELECTRIC REVENUES NUMBER OF BILLS CLASSIFICATION CURRENT PREVIOUS CURRENT PREVIOUS
YEAR YEAR CURRENT PREVIOUS PREVIOUS CURRENT PREVIOUS YEAR RESIDENCE RATE B YEARLY LIGHTING RATE C 21 GENERAL WHOLESALE RATE D LOW TENSION 32 COMMERCIAL 34 RAILROADS & RAILWAYS HIGH TENSION 36 COMMERCIAL 39 OTHER ELECTRIC UTILITIES TOTAL HIGH TENSION TOTAL RATE D STREET LIGHTING RATE E 41 MUNICIPAL INCANDESCENT 42 43 COMMERCIAL 45 OTHER ELECTRIC UTILITIES TOTAL RATE E GENERAL POWER RATE F 51 SHORT USE. "ESTABLISHED DEMAND 52 " " *INDICATOR 53 LONG USE. ESTABLISHED 54 " " INDICATOR TOTAL RATE F WHOLESALE POWER RATE G TOTAL LOW TENSION HIGH TENSION 66 COMMERCIAL 68 RAILROADS & RAILWAYS TOTAL HIGH TENSION TOTAL RATE G MISCELLANEOUS ENERGY RATE H 73 TOTAL HIGH TENSION TOTAL RATE H WHOLESALE COOKING RATE K COOPERATIVE WHOLESALE RATE N 62 OTHER ELECTRIC UTILITIES TOTAL RATE N SUPPLEMENTARY SERVICE RATE S 91 DIRECT CURRENT 92 ALTERNATING CURRENT INTERCHANGE ALL RATES LOW TENSION HIGH TENSION TOTAL FARMS *NO CURRENT BILLEO ON SECONO BLOCK OF RATE

ELECTRICITY FOR "COMPANY USE."

(at locations outside of Generating or Sub-Stations) NOT BILLED To Date METER ALIVE kw. hrs.kw. hrs. Clause #1 Signs-Pay Stations and ClockITEMS #2 Signs on Company's Property General Lighting and Power #3KW.-HR. #4 Free Electric Current Appliance Dept. # 5 #6 Steam Heating Dept. Community and Electric Shows #7 Broadcasting Dept. #8 Total, kw. hrs.

CORRECT SUPT. BILLING DEPT.

APPROVED APPROVED

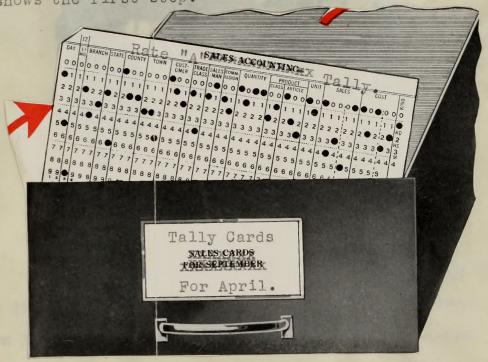
AUDITOR

MONTH OF.....

COMPARATIVE ANALYSIS OF ELECTRIC REVERUES.

The Path of the "B" Punched Card.

We will take the original card we punched (see page 143) which was for April 24, 1930 and included fourteen bills under Residence "B" Rate. This card is taken with all the other rate cards showing the Tally for the month of April from the appropriate file. The enclosed cut shows the first step.



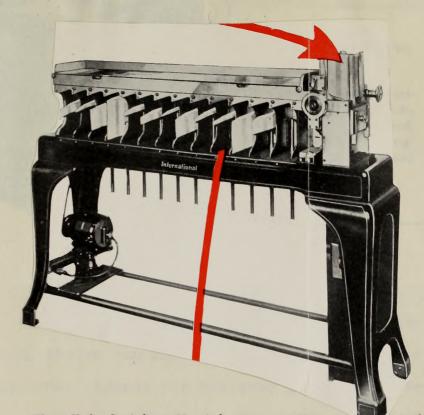
Then all of the cards for the month of April are placed in the hopper at the right of the Sorting Machine. The arrow points to where the cards are stacked before the machine is started. The enclosed illustration also shows the cards which have dropped into their particular group after they have traveled over the top of the Sorting Machine.

He will take the original card-we passed (see page 145) which was for april 56, 1950 and included four-own mile under Residence "B" mate. Inte card is taken with all the other rate cards showing the Tally for the month of April from the appropriate file. The enclosed out above the include that the spropriate file. The enclosed

Fings to minom one for abrab and to lis month

ero placed in the hopper at the right of the Sorting Machine. The errow points to where the cards are etacked before the machine is started. The enclosed illustration flat anomal the machine have dropped into their ter-ticular group efter they have traveled over the top of the the sorting Machine.

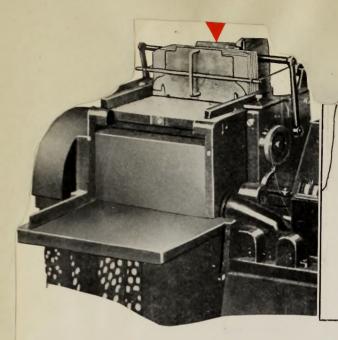
Our particular card is probably in the second group from the right of the machine.



The Tabulating Machine operator wolf take all the group "B" cards for the month of April and place them in the stacker or hopper in the Tabulator. The following cut shows by the arrow where the cards are placed on the Tabulating Machine.

buotes and of grandens of bree separations and

the other bluew recovered anthrous actions of a common our control one of the control of the con



Totalizers

ELECTRIC ACCOUNTING MACHINE

Antomatically prepares various printed, finished reports, with carbon copies if desired, from the same group of original entries (the punched cards).



As the cards run through the machine, the totalizers which are on the face of the machine, would record the accumulated figures for whatever information we seek. Our "B" card which is for April 24, 1930, would add 14 bills to the total for April when it went through the machine. We would put the total of the number of bills in the first column of the Analysis Sheet on page 145. Our "B" card would add 461 kilowatt hours to the total of the amount entered into the "C" column of the Analysis Sheet. Our "B" card would add \$30.91 to the total of this particular group which is entered into the "D" column for Electric Revenues.

As the cards run through the machine, the totalisers which are on the face of the machine, would record
the accumulated figures for whatever information we seek.

Our "8" card which is for April 26, 1950, would add 14

bills to the total for April when it went through the mecuine. We would put the total of the number of bills in

the first column of the Amalysia inset on page 165.

Our "8" card would add 461 kilowate hours to the total

of the amount entered into the "0" column of the Analysis

Sheet. Our "8" card would add \$50.21 to the total of this

Particular group which is ontered into the "D" column for

Electric Revenues.

After the operator had entered the information shown by the totalizers for all the cards in the Group "B" Rate for April, she would take from the sorting machine all the cards in group "A" and place them in the Hopper of the Tabulating Machine. They would then be ready to run through the machine in order to get the information to be entered on the Analysis Sheet. After the cards have gone through the machine they are placed in order back into their appropriate file drawer.

compared to the beamond ben revered and rest to the come of the co

The Bill at the Bookkeeping Division

We have seen how Miss Weickers' bill of April 27, 1930 was checked for accuracy by the Calculating Division and how the information it contained was submitted to the Statistical Division for its use in the preparation of the monthly reports.

Now, however, the bill is sent to the Bookkeeping Division of the Accounting Department where any
charges for appliances purchased by Miss Weickers may
be entered on the bill. Miss Weickers it seems did not
purchase any electric appliances from the Company and of
course she will not be charged for any.

In order to understand what happens to the bill in the Bookkeeping Division it will be necessary for us to study the four perforated parts of an Edison Electric Illuminating Company bill. We will use Miss Weickers' bill as of April 27, 1930 (see page 117).

Part "A". This is Miss Weickers' receipt which she keeps to show that she has paid the amount due. It contains the date of reading, present and prior readings, rate, area, kilowatt hours used, and the amount.

We have seen how Miss Teickers' bill of April. 27, 1950 was checked for occursey by one deleniating Division and now the information it contained was submitted to the Statistical Division for its use in the preparation of the monthly reports.

How, newsor, the bill is sent to the Bookkeeping Division of the Accountify Department where any
charges for empidence, purchased by Sign Welchers may
be entered on the bill. Miss Welchers it seems did not
burchase ing electric appliances from the Jompany and of
course she will not be assayed for any.

In the Bookineplay Olvision it will be recessary for us to show the frum norforesed derte of an Edison Electric Illuminating Company bill. We will use Miss Weickers' bill as of April 27, 1920 (see cage 117).

Part "A". Inde to show there she has paid the emount due. It contains the date of reduling, present and order readings, recent and the emount.

Customer's Receipt.

THE EDISON ELECTRIC ILLUMINATING COMPANY OF BOSTON GENERAL OFFICES: 39 BOYLSTON STREET

PARTUADY

Apr. 27, 1930

MISS NELLIE WEICKERS
49 STOUGHTON ST. SUITE 2,
BOSTON, MASS. 289-167

PRESENT DATE	PRESENT READING	PREVIOUS READING	*RATE	KW-HR.	AMOUNT
Apr 24	3220	3162	B10	58	3.60
	I 100 SQ. FT. D IN KILOWATTS E FOR DETAILS OF RA	ATES	PREVIOUSLY		

Part "B". This is the remittance coupon of Miss Weickers' bill which is detached at the time she presents the bill for payment. It is the Company's record of the payment of the bill by the customer.

matosop a deserve.

salv to record eccession is an elect ."" " over the sale she sale

Remittance Coupon.

THE EDISON ELECTRIC ILLUMINATING CO 39 BOYLSTON STREET	
PART "A" COPY MISS NELLIE WEICKE 49 STOUGHTON ST. S BOSTON, MASS. 289-	UITE 2,
	AMOUNT 3.60
PREVIOUSLY RENDERED TOTAL AMOUNT DUE	

While the bill is at the Bookkeeping Division

Parts "A" and "B" together are detached from the remain
der of the bill and are sent to the Mailing Division where

the bill is folded and inserted into an open face envelope

which allows the name and address only to be read by the

Post Office.

Then the envelope containing the bill goes to the Metered Mail Machine which stamps the Official U. S. Imprint and the time of mailing. The number of impressions made by the metered mail machine is paid for at the local Post Office at the rate of $2 \not \in$ each.

A truck from the Mailing Division takes the bill to the Post Office. Later, of course, the envelope is delivered to the customer's home.

While the bill is at the Booksesping Division
Parts "A" and "s" together are detaoned from the remainder of the bill and are sent to the Mailing Division where
the bill is folded and incerted into an oran face envelope
which slices the came and address only to be read by the

Then the moter the time of mailing. The number of inoresloos words by the metered mail machine is naid for at the
loos poet office at the rate of of sach.

A truck from the Mailing Division takes the bill to the Post Office. Later, of course, the envelope is delivered to the ousfouer's nome.

The Bill at the Customer's Home.

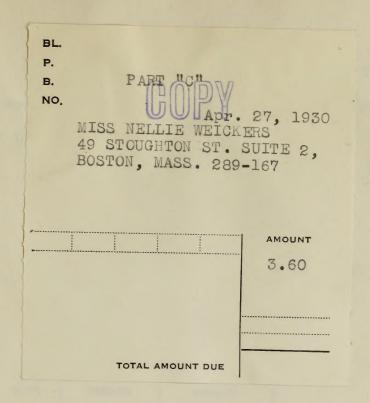
In five days return to
THE EDISON ELECTRIC ILLUMINATING COMPANY OF BOSTON
39 Boylston St., Boston, Mass.

MISS NELLIE WEICKERS
49 STOUGHTON ST. SUITE 2,
BOSTON, MASS. 289-167

Meanwhile, the remainder of the bill is at the Bookkeeping Division and the Collector's Coupon or Part "C" is detached and sent to the pay station. This pay station is Pulsifar Hardware Store, 317 Harvard Avenue, Allston. Miss Weickers' home is located in the Allston district of Boston. The collector at this pay station receives 2¢ per coupon and is the sole agency for this particular district.

Meanwhile, the remainder of the pill is at the societes of the policeston of the modern of the course of the cours

Collector's Coupon.



when the customer calls at the pay station to pay her bill, the collecter takes this coupon and compares it with her bill and upon receipt of her money he detaches the remittance coupon and stamps her receipt. Then he takes the remittance coupons he has received for the month and makes out a check for all the cash received. The check and the remittance coupons are sent to the Boston Office. The collector retains Part "C" until he receives his money from the Company for all his collections for the month.

. control p godballon

The sheet and residence to the state and state of the course of the state of the st

The last section of the bill or Part "D" is the ledger record coupon which has an important part of the work of the Accounting Department.

Ledger Coupon.

TRANSFERRED TO - FORM 41R-1/2 M 2-30

The Edison Electric Illuminating Company of
Boston uses the Stub Plan of Keeping Customer's Accounts.

In order to understand this plan it is first necessary
to refer to the usual ledger method of keeping customer's
accounts. At the time the bill was made out, Miss Weickers' account would be charged for the amount of electricity
sold to her for the month. This would amount to \$3.60
and would be posted as a debit to her account from the
Sales Book of the Company. When Miss Weickers paid this

end of "G" over no lile one 2 retoring and enty

end to over record assembly which has an important part of the

work of the assembling department.

Lougher Jouann.

The Edison Electric Hillering Content's quadratic order to the state of the state o

bill on May 9, 1930, a credit posting would be made from the Cash Book to her account and the account would be closed for the month. The tremendous amount of work necessary to go through this procedure for 350,000 customers can hardly be imagined unless one has had an opportunity to take part in it. At the end of the month all these accounts had to be added and balanced and the totals must agree with the amount shown on the Company's Trial Balance for the Customer's Accounts.

Under the new plan, stubs and trays are used instead of ledgers to keep a record of the customer's accounts. For example, on April 28, 1930 the clerk in the Accounting Department would take Miss Weickers' ledger coupon or stub and place it in the UNPAID TRAY marked "289". The trays are marked with numbers because the 350,000 customer's accounts are divided into about 325 trays with approximately 1000 accounts or stubs in each tray. If we look at the bill of Miss Weickers we see below the address on the receipt coupon and the ledger coupon "289-167", the "289" is the tray in which the ledger coupon is placed. The "167" means that her home is on the first or "1" street in the district "289" and "67" is the approximate number of her house on that street. To be exactly correct since her house number is "49" it should be

bill on lay 9, 1930, a oredit posting would be made from the Cash Rook to her ecopone and the account would be ologed for the tramendous amount of work necessary to go through this procedure for 350,000 customers can hardly be imagined unless one has had an opportionality to take part in it. At the end of the month all these accounts had to be edded and balanced and the to-

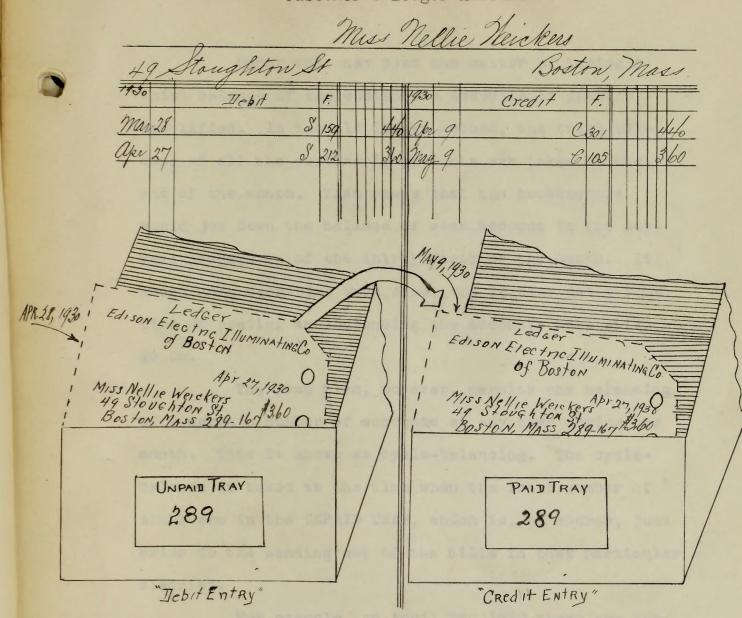
Under one mew plan, shubs and brays are used incounts. For example, on April 28, 1930 the clerk in the end salmand promun noth beings ore svent out . "ege" tray. If we look at the bill of Miss Welchers so see benegbel ord molds of your end at "282" ads ""721-882" non and ac al mach ten the "lay" means that her loss is an the econoximate munber of Her house on that street. To be ex"289-149", but of course, it is impossible to have the street and house numbers absolutely correct for each customer.

On May 9, 1930 when Miss Weickers paid her bill, the clerk in the Accounting Department would be notified by the receipt of the remittance coupon which showed that the cash was received and she would take the ledger coupon of Miss Weickers from the UNPAID TRAY "289" and place the coupon in the PAID TRAY "289" and in this way Miss Weicker's account would be closed for the month. No pen and ink entry had to be made nor was any posting necessary. The diagram enclosed shows the ledger account of Miss Weickers with the debit and credit entries and also how the placing of the ledger coupon in the UNPAID TRAY and the PAID TRAY has the same effect as far as the customer's account is concerned.

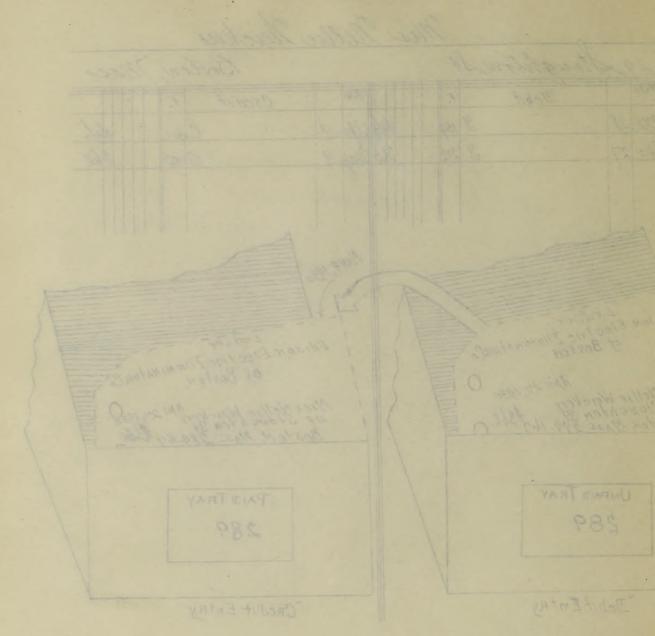
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Litt each birg arthous when with mean that the bold on a state and state and

Customer's Ledger Account



The Stub Plan of Keeping Customer's Accounts.



The Stub Pinn of Perling Customer's Accounts.

Under this new plan the matter of taking a trial balance of the customer's accounts is greatly simplified. In the old ledger method, the trial balance of all the customer's accounts was taken at the end of the month. That means that the bookkeepers would jot down the balance of each account in the several ledgers as of the thirty-first of the month. It meant much over-time work since the regular daily routine of posting and balancing the accounts must still go on.

The Stub Plan, however, permits the balancing of a certain number of accounts at any time during the month. This is known as cycle-balancing. The cycle-balance is taken at the time when the least number of stubs are in the UNPAID TRAY, which is, of course, just prior to the sending out of the bills in that particular district.

For example, on April 25, 1930 there are the least number of bills or ledger coupons in the "Unpaid Tray--289" and on this day the bookkeeper would list the amounts of all the ledger coupons remaining in the "Unpaid Tray--289" and this would be the cycle-balance of the customers in this particular district.

The series to restant the seem that the matter to the control of t

The Stub Plan, Fowerer, permiss the balancing of a certain number of scrounds at any time juring the mooth. This is mown as cycle-balancing. The cycle-balancing. The cycle-balancing of inches are in the UNFAIR THAY, valor is, of centre, just where to the sending out of the older is particular district.

Tray--282" and on tain day the provises to the "Unpeid success of the "Unpeid tray--282" and on tain day the provises of the "Un "Un "Un success of the to the confises of the the "Un "Un the ledger coupons remaining in the "Un "Un the onetoners in this mould be the cycle-calance of the onetoners in this carnicular discrice.

When the bookkeeper was jotting down the amounts of the ledger coupons in the tray we know she would not find Miss Weickers', because she paid her March bill of \$4.40 on April 9, 1930. See diagram on page sixty-eight. Therefore, on April 9, the clerk took the ledger coupon of Miss Weickers for \$3.60 and placed it in the "Paid-Tray--289" and this closed Miss Weickers' account until the bill of April 27, came through and was placed in the "Unpaid Tray--289" and then Miss Weickers' account showed a balance of \$3.60.

The Payment of the Bill.

We recall that in the previous section the first two parts of the bill, the customer's receipt and the remittance coupon, were mailed to the home of Miss Weickers. Miss Weickers on the morning of May 9, 1930 called at the General Offices of the Edison Electric Illuminating Co. of Boston, at 39 Boylston Street. Her regular collector is the Pulsifar Hardware Store because she is in the Allston district of Boston. But she was in the city and decided to pay her bill at the main office.

She stopped on the first floor and went directly to the Receiving Tellers window to pay her bill. The first floor of the Edison Electric Company of Boston looks very much like a bank with the Receiving Tellers windows, the information desk, and the adjustment of customer's accounts office.

Miss Weickers handed Mr. John Dole, Receiving Teller, her bill with a check for the amount due. The check which is on the Brookline Trust Co, is enclosed.

We recall that in the previous section the first
two cents of the bill, the customents receipt and the remitting coupon, were melled to the home of Miss Weickers.
Miss Weickers on the moraing of May 9, 1950 called at the
General Offices of the Edison Electric Illuminating Co.
of Sector, at 50 Boylaton Street. Her regular collector
is the Pulaiter Hardware Store because and is in the Aliston district of Boston. Ont and was in the city and de-

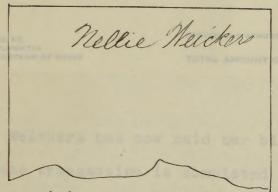
she stopped on the first floor and want directly to the car bill. The first on the car bill. The first on the car bill and to real to

Miss Weighers imided in. John Dolo, Meneting Telet Telet amount due. The check which is on the Brookline Trust Co. is enclosed.

Miss Weickers' Check.

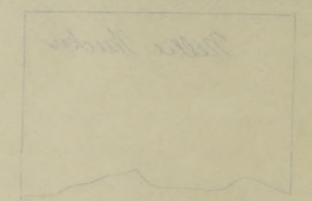
BROOKLI	may 9	19.30	No. 567
PAY TO THE E dison Ele	ectric Ill. G	ompany !	\$ 360
PAY TO THE & dison Ele	re and 60		Dollars
COMPANY!	Willie	Weich	ers
CENNISON 5 SORS-LITHO-NEW YERK-BOSTON			

Blank Indorsement on Back of Check.



Upon receiving the check from Miss Weickers,
Mr. Dole, the Receiving Teller, took the bill and had
both parts stamped. He tore off the first part, or the
customer's receipt and handed it back to Miss Weickers.
We notice on the receipted bill enclosed, that it is
marked paid, with the date and the company's initials.

Blenk Indonsement on Back of Check.



Upon receiving the aneat from Miss Weickers, ar. Dole, the Headving Teller, took the bill and had not parts stammed. He tore off the first part, or the quaromer's receipt and handed it beck to Miss Weickers. We notice on the receipted bill enclosed, that it is marked paid, with the date and the company's initials.

Customer's Stamped Receipt.

THE EDISON ELECTRIC ILLUMINATING COMPANY OF BOSTON GENERAL OFFICES: 39 BOYLSTON STREET

COPY

Apr. 27, 1930

MISS NELLIE WEICKERS
49 STOUGHTON ST. SUITE 2,
BOSTON, MASS. 289-167

PRESENT DATE	PRESENT READING	PREVIOUS READING	*RATE	KW-HR.	AMOUNT
Apr 24	3220	3162	B10	58	3.60
*RATE B AREA IN			PREVIOUS	SLY RENDERED	
	D IN KILOWATTS E FOR DETAILS OF RATI	ES	TOTAL A	MOUNT DUE	

Miss Weickers has now paid her bill for the month of April and the transaction is completed as far as it concerns her.

Mr. Dole, the Receiving Teller, takes the check and places it in his cash drawer. The remittance coupon which he tore off the bill after it was stamped he placed with the other coupons he received for the day. The stamped remittance coupon is enclosed.

of April and the transaction is completed as far as it

Mr. Dole, the Receiving Teller, takes the check and places it in his cash drawer. The remittance compon which he tere off the bill siter it was stamped he placed with the other compons he received for the day. The stamped remittance compon is enclosed.

Stamped Remittance Coupon.

THE EDISON ELECTRIC ILLUMINATING COMPANY OF BOSTON 39 BOYLSTON STREET				
COPY:				
MISS NELLIE WEICK	THE REAL PROPERTY.			
49 STOUGHTON ST. SUITE 2, BOSTON, MASS. 289-167				
	3.60			
PREVIOUSLY RENDERED				
TOTAL AMOUNT DUE				

Mr. Dole, the Receiving Teller, at two o'clock of the afternoon of May 9, 1930 will take a total of all the cash he has received for the day. He then will make out a Daily Report of Cash Collections showing the Bills, Specie, and Checks which make up this total. He sends this Report with the cash and the remittance coupons to the Cashier's Department. The form of Daily Report of Cash Collections with the total amount received by Mr. Dole is enclosed.

Mr. Dole, the Receiving Teller, at two o'clock of the afternoon of May B, 1930 will take a total of all the days as no man received for the day. He then will make out a Daily Report of teen Collections showing the Mills. Specie, and Checks which wasks up this total. He cends the Japier with the cash and the remittance compone to the Japier's Department. The form of Dally Recort of Cash Collections with the total amount received by Mr. Dole is enclosed.

Daily Report of Cash Collections.

Form 166 M				
THE EDISON ELECTRIC IL	LUMINA	TING		
COMPANY OF BOSTON				
Daily Report of Cash	Collec	tions		
May 9, 193				
	1.			
Bills	1595			
Specie	5	00		
Check Broakling Trush	3	60		
" atlantie Mat I Ba	up 6	35		
"Harvard TrustCo	3	00		
" Cambudge Trust?	4	65		
"Ensured natil	5	00.		
" Showmut not!	1 4	40		
" Hart Mat IBan	6 3	45		
" Boston Saungsh	Purp 3	15		
" Torour y trupp	Way S			
46				
64				
66				
4.6				
46				
(6				
16				
66				
46	1/			
Total 6	\$634	00		
John Dal	e s	Collector		
Receiving Tella				
1	1			

Daily Report of Usah Collections.

We notice that Miss Weickers' check on the Brookline Trust Co., for \$3.60 is at the top of the list on the Report. When Mr. Dole makes out the Report he also makes out the following from to show the number of stubs which go to make up the total of his Cash Collection Report. This form also shows the time, date, and amount of actual cash he has received. This amount of course is taken from the Daily Report total.

Teller's Report.

634.00 - Actual Cash Rec

Teller

Stubs

Time ...

Data

TheEEICo.ofB. Form X320

The remittance coupons or stubs and the cash with the two reports then go to the Cashier in the Cashier's Department. The Cashier than sorts the stubs into the account or district number order corresponding to the trays in the Accounting Department. For example, the stamped remittance coupon on page one sixty-four would be placed in the "289" coupon group. Then a total of these

We notice that Miss Welckers' check on the Brookling Trust Co., for MS.80 is at the top of the list on the Henort. When Mr. Dole makes out the Henort he sign makes out the Tollowing Fran to show the number of atobs which to to make up the total of his Jash Collection maport. This form also shows the time, and smount of satual cash he has recoived. This amount of course is taken from the has recoived. This amount of course is taken from the Daily Report total.

The remibtance commons or route and the cash with the two reports then to the dashier in the dashier the dashier the dashier the state in the dashier than corps the state in the crowns or district member order corresponding to the trays in the Accounting Department. For example, the stamed remittance compon on page one sixty-four would be placed in the "289" coupon group. Then a total of these

cashier sees if this total of the stubs agrees with the total of the cash collection report. The amount of the stubs should be \$634.00 to agree with the amount of the cash \$634.00. If it did not agree, the Receiving Teller must go to the Cashier's Department and check over the stubs and the cash until he discovers the error.

The adding machine list of the stubs and the stubs or remittance coupons are sent to the Accounting Department. The clerk in the Accounting Department takes the stubs and goes to the trays and matches the remittance coupons against the ledger coupons in the unpaid tray. If it agrees he removes the unpaid ledger stub and places it into the paid tray.

To take a specific case we will see what happens in regard to Miss Weickers' account. The clerk in the Accounting Department when she received the stamped remittance coupon of Miss Weickers, see page 164, went to the UNPAID TRAY--289. In order to understand this perfectly study the diagram on page 158. She compared the remittance coupon with the ledger coupon see page one hundred fifty-five, and finding that they agreed, she took the ledger coupon of Miss Weickers and placed in in the

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Separation of the clark in the Accounting Department takes the stube and goes to the trape and ratenes the remitteness

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in regard to Mine Welchern' scoonst. The clock in the season to the sense to the common season she received the standard continuence couper of Mine Welchers, see pass 164, went to the MARALD TRAY--189. In order to understand this perfectly stady the diagram on pass 186. The expense the remistand tour on with the ladger couper see may one hundred three five, and finding that they agreed, and took the leager couper of Mine Melchers and placed in in the

PAID TRAY--289. This completed the credit entry and Miss Weickers' account is closed for the month.

The stamped remittance coupons and the ledger coupons from the PAID TRAYS are held on file for some time and later they are taken down to the vault on the third floor and held on record in case any question might arise about the payment of an account.

The next morning, May 10, 1930, a truck from the Old Colony Trust Company calls at the Edison Building and Miss Weickers' Check (see page one hundred sixty-two) along with all the cash received the preceding day is sent to the Bank to be deposited to the account of the Edison Electric Illuminating Co. of Boston.

This is a comprehensive summary of the entire procedure from the time the meter reader calls at the customer's home till the money in payment of the bill is deposited at the bank.

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The old Colony Trues Commany calls at the Edison Soliding and the Market Commany calls at the Edison Soliding and the Market State of the Colony with all the despressived the openedic day is sent to the Benk to be deposited to the acquire of the Edison Sleethic literating Co. of Boston.

recedents from the time the motor reader calls of the entitle of the calls of the calls of the calls of the calls of the call the calls of the bill te

Suggested Time to be Devoted in Class to this Unit.

First Day.

The Meter Reader's Visit.

The Meter Reader's Book at the Calculating Division.

The Billing Department.

Second Day.

The Addressograph Division.

a. The Graphotype

b. The Automatic Feed Addressograph
Third Day.

The Return of the Bill to the Calculating Division.

The Statistical Division.

Fourth Day.

The Bill at the Bookkeeping Division

Fifth Day.

The Payment of the Bill.

Note: The above schedule is assuming that full time is devoted to the Appreciation Unit. If, however, the Unit is given in conjunction with the regular Bookkeeping Course, the teacher may allow three or four weeks for the presentation of the material on part time basis along with regular work.

Suggested Pine to be derived in steas to this Unit:

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The Meter Reader's Visto.
The Meter Reader's Sopk of the Calculating Division.

Become Day.

The Addressourage Division.

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The Abourn of the Bill to the Unlouising Division.

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Providing for the Expression of the Pupils with Reference to the Appreciation Material.

The Meter Reader's Visit.

- a. Have them draw a diagram of their own Electric Meter.
- b. Read their meters for one month and bring their readings to class showing the dials.
- c. Construction of a large chart showing the dials of the electric meter and with a movable pointer on each dial.
- d. Each pupil move the pointers on the dials to show how his electric meter dials appear at the first of the month.
- e. Each pupil read his meter at the end of the month and move the pointers on the chart to show the later meter reading.
- f. The pupils will make an Order Form to show their own entrance on to the lines of the Edison Electric Company.
- g. Then they will find out from their meter reader what their house area is and under what rate it comes.

Providing for the Expression of the Purils attn Delerons to the Argresiation Meterical.

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- and the above one not treated the deal .d
- dialy of the discrete notes and with a more
- d. Each out I move the polyters on the delegar
- o. Used supil road his maper as the east to to the court to another reading.
 - f. The runils will make a cade Form to the the the of the the Street of the Street Street Commun.
 - resider that the court court maker report that the substant ander when the substant when the substant when the substant and t

The Meter Reader's Book at the Calculating Division.

- a. The pupils may be given the readings as shown on the meter page enclosed on page 11, or make up a meter page for their readings. They will find the approximate amount of electricity used each month and thus build up a meter page showing the amount of electricity used for several months.
- b. Each pupil will go to the chart and move the pointer on the dials to record the readings for each month.

The Billing Department.

- a. The class, or a few representative pupils,

 may visit the Burroughs Public Utility Billing

 Machine Co., 136 Federal Street, Boston.
 - 1. Have machine demonstrated.
 - 2. Have them make out with the help of the operator, four or five bills from their own meter page.
 - 3. The other pupils may make theirs out in pencil or typewrite them.

The morar readin's sook at the Joulaving Division.

a. The pupils mer no given the readings as
shown on the moter asks enclosed on page
11, or mote up a moter page for their readings.
They will find the approximate amount of electricing used each month and time build up a
merer page showing and amount of electricity.

b. Look pupil will go to the chart and move the pointer on the dista to record the residues.

The Billing Department.

may visit the Suproughs Public Stillty Billing Machine Co., 135 Pederal Street, Boston.

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3. The other runlis may make theirs out the penell or typewrite them.

The Addressograph Division.

- a. A visit will be made to the Addressograph Co., 26 High St., Boston.
- 1. Have the Graphotype Machine demonstrated and have their own names, and addresses embossed on the plates.
- 2. Also have the Addressograph Machine demonstrated and have their own names and addresses printed on the bills.
 - 3. It may be possible to have these companies send out machines for class demonstrations.

The Return of the Bill to the Calculating Division.

a. Have the pupils check over each others bills after they are made out, to see if they are correct.

The Statistical Division.

- a. A visit may be made to the Internation Business Machine Co., 27 Huntington Ave.,
 Boston. The following points to be observed:
 - 1. How the tabulating card is punched.
 - 2. How the cards are sorted.
 - 3. How the cards when going through the tabulator give certain information we wish.

The Addressource Division.

s. A visit will be made to the Addressess co.,

I. Mayo the Graphorype Machine duminstrated and nove their own names.

and addresses embnased on the plates.

2. Also have the Addressograph deciding
demonstrated and have their own names
and addresses printed on the pills.

3. It may be notedated on the pills.

3. It may be notedated to have these
companies and one machines for class
demonstrated on.

The Recurs of the Sill to the Calculating Division.

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a. A visit may be made to the Interpretar Susiness Machine do., 27 Huntington ave.,

Boaton. The following suince to be observed:

1. How the tabulating cord is embedd.

2. How the cards and surred.

3. How the cards when going through the

s. How the cards when going chrones.

The Bill at the Bookkeeping Division.

- a. A discussion of the four parts of the bill and the function of each.
- b. Each pupil observe the bill when it arrives at his home from the company.
- c. Two file drawers or boxes may be used to demonstrate how the customer's accounts are
 handled. The class will represent one block
 of accounts and after the remittance coupons
 have been received they may go through the
 regular office procedure and take a cyclebalance at the end of the month.

The Payment of the Bill.

a. The pupils will observe and write out a description of what happened when they paid their family bill at the pay station or at the Boston office of the Company. the Bill at the Bucklesoing Division.

- and the function of secure parts of the bill
- b. Ench copil observe the oll when it orriver
- e. Two file drawers or boxes may be used to demonstrate now the engineer's seconds are
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 of seconds and after the remissance locations
 of seconds as the class may go chrough the
 regular office procedure and take a cycletestance at the end of the month.

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* This bibliography may on first sight appear somewhat brief, but it will be remembered that this is a comparatively new field. Most of this thesis is the result of personal investigation by the writer. Paranard, M. Roland, Advountance -- Lts Pustions in and Paranard, M. Roland, Advountance -- Lts Pustions in and Partinence to Business.

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